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EXCLUSIVE CONTRIBUTIONS

Infiltration Anesthesia.

*Consideration of Infiltration and Chemical Action as regards Cocaine, and
Alpha Beta-Eucaine.*

By DR. W. LOHMANN, Berlin.

There are two efficient factors concerned in the production of infiltration anesthesia which must be clearly differentiated from one another. The one is the physical effect of the infiltration from pressure, differences of temperature, etc., (Schleich) and the other is the chemical action of the drug employed (cocaine, eucaine, etc.) to paralyze the sensitive structures. The distinction becomes very evident upon auto-experimentation. Let the experimenter select two similar portions of the body surface, of equal sensibility and tension. Let him then, under equal pressures, inject subcutaneously small but equal portions of a fluid as indifferent as possible, say, physiological salt solution at the body temperature, and a stronger, say 5 per cent alpha-eucaine solution. The former will cause no anesthesia, or at most slight obtunding of sensibility. The latter will effect an absolute anesthesia over an area measuring about one square centimeter (2-5 in. square) around the site of injection, beginning about one minute after the puncture, and lasting for about one hour. To obtain a complete anesthesia with the indifferent fluid, the entire area must be tensely infiltrated; the effect appears immediately after the injection and disappears in a few minutes as the fluid becomes disseminated through the tissues and absorbed.

Such an experiment clearly demonstrates the difference between a physical anesthesia obtained through a purely mechanical ischæmia, and the chemical action of eucaine, which on contact paralyzes the sensitive elements. When weak, 1 per cent eucaine and cocaine solutions are employed, as in the Schleich solutions, the anesthesia is effected chiefly mechanically, by the infiltration, though it is aided by the chemical

factor; thus we get a combined physico-chemical action. It may be accepted as a rule, that, the stronger the solution employed, the less the amount of infiltration required to cause loss of sensibility. The duration of this combined action is greater than that of infiltration pure and simple; but it is not so great as that effected by the more concentrated chemical solutions.

The entire anesthetic action depends upon the intensity and duration of the effect, and the extent of surface influenced. With indifferent and weak solutions this latter area does not exceed the visible limits of the infiltration; it increases in extent with increased concentration of the chemical solutions. This can be demonstrated by the injection of small but equal quantities of a $\frac{1}{2}$ per cent, 2 per cent, 5 per cent and 10 per cent cocaine or eucaïne solution into various similar portions of the body. During the first few minutes after the injection not only does a hemi-anesthetic zone form around the infiltrated area, but the anesthetic field itself grows larger in accordance with the concentration of the solution employed. This growth varies in the different tissues independently of their structure and consequent resistance. It depends more especially upon the strength of the solutions and the consequent diffusion and osmosis between the infiltration and the tissue fluids, the more concentrated the injection, the greater the quantity of cocaine or eucaïne to reach the tissues beyond the infiltrated area and to exert their characteristic effect. The duration of the anesthesia more especially is dependent upon the strength of the injected solution. With an indifferent solution the effect ends with the diffusion and absorption of the injected material. The anesthetic action of a $\frac{1}{2}$ per cent, 1 per cent or 2 per cent alpha-eucaïne lasts about half an hour, that of a 3 per cent or 5 per cent alpha-eucaïne solution a full hour. For absolute anesthesia a 2 per cent eucaïne or cocaine solution at least is required; this is strong enough to paralyze the sensibility of the nerve elements on contact.

In the practical employment of infiltration anesthesia in surgery it is advisable to rely as much as possible upon chemical action, and to regard the injection itself merely as the means by which that can be brought into effect. Schleich's method depends upon the infiltration itself as the effective agent, and lays the greatest possible stress upon its physical action. Its introduction was an epoch making event in the history of local anesthesia, since it opened a wide field for its employment; and it should be employed everywhere where the chemical action of a paralyzing drug cannot be used without danger. As regards cocaine, stronger solutions can only be employed in small quantities and hence for limited operations. But relatively non-poisonous local anesthetics, such as eucaïne, can be used in greater concentration, and will be generally

employed. The most suitable solutions will be such as develop the best anesthetic effects as regards intensity, duration and extent, without doing any harm. And they should be used with comparatively small quantities of fluid, so as to reduce the infiltration as much as possible. The less the tissues of the field of operation are distended by the injected fluid, and the less the tissues are mechanically irritated, the less will be the amount of the after pain, which is by no means completely obviated by the morphine that is found in the Schleich solutions.

Of the two eucaine preparations (alpha and beta-eucaine hydrochlorate) beta-eucaine is to be preferred. Alpha-eucaine is indeed more efficacious, but it is more poisonous than beta-eucaine, though less so than cocaine, but it has been designated an "anestheticum dolorosum" by Liebreich. Both eucaines are distinguished from cocaine by being readily sterilizable and preservable in solution for months. Beta-eucaine in stronger solutions, up to 5 per cent, is by far the best and most harmless infiltration anesthetic known to surgery. It is permanently soluble in this concentration, but it crystallizes out of stronger, 5 to 10 per cent solutions, dissolving only on the application of heat. The very strong solutions are not to be recommended, since in some cases they cause a reactive inflammation of the skin and tissues. The most important property that distinguishes beta-cocaine from both cocaine and alpha-cocaine is its far weaker poisonous effect.

Toxicologic experiments upon rabbits show that about 2 grams (30.8 grains) of a 5 per cent cocaine solution (0.1 gram-1½ grains of the drug) per kilogram (2 1-5 pound) of body weight are sufficient to cause death. Of an equally concentrated beta-eucaine solution 10 grams (154 grains), being 0.5 gram (7.7 grains) of the drug are required for a like effect. The same concentration and dose that in a cocaine or alpha-eucaine solution would be fatal, does not cause the slightest symptoms of poisoning when beta-cocaine is employed. Amounts equaling 0.1 gram (1½ grains) of beta-eucaine per kilogram (2 1-5 pounds) of body weight may be injected without the slightest apprehension. And this would equal a quantity which is never even most distinctly approached in infiltration anesthesia, even when solutions up to 5 per cent in strength are employed.

Beta-cocaine is equal to cocaine in anesthetic power, and perhaps even superior to it. The tonic effect upon the vessels, which is claimed as an advantage for cocaine in infiltration anesthesia (Schleich), is probably of no importance.

Beta-eucaine solutions of 4 per cent to 5 per cent are most suitable for infiltration anesthesia. They may be used without the least danger in the quantities required for the operations suited to the method. The

2 per cent solutions recommended by Réclus do induce anesthesia, but are not so effective as to duration and extent. Absolute anesthesia for about three-quarters of an hour can be gotten with a 5 per cent solution, without causing much œdema, and by a very moderate infiltration of the tissues and a contract paralysis of the sensitive elements. Thus, with comparatively small quantities of fluids, and a moderate infiltration, a better and more persistent anesthesia can be obtained than with the Schleich solutions. This is a valuable property, and permits of a simplification of the necessary technique, as we shall show below.

The site of injection, more especially in very sensitive regions, has been anesthetized in the usual manner with ethyl chloride. The needle is then introduced and slowly advanced subcutaneously over the field of operation, small quantities of the fluid being injected at each step. Immediately thereafter, or if necessary during the operation, the different layers of tissue are injected one by one to the depth that may be necessary. In bone operations the injections must extend to the periosteum. Nerve trunks are to be avoided as far as possible. After the entire operative field has been thus very moderately infiltrated, an interval of a few minutes is allowed to pass; and then work can be done without pain for about three-quarters of an hour. More especially in hyperæsthetic and inflamed tissues, and very sensitive localities, the injections should be made very carefully and slowly; and here the marked anesthetic effects of the concentrated beta-eucaine solutions with their small quantities of fluids and consequently moderate infiltration of the tissues are of especial advantage, in view of the tension and hyperæsthesia that already exists.

Here again it is not necessary to follow Schleich's technique closely, making a primary and then the secondary infiltration wheels with multiple punctures. The anesthesia may be effected more simply as follows: The needle is inserted, as usual, at one end of the line of incision, and in the healthy skin beyond the hyperæsthetic area. A minimum quantity, about 1-10 gram ($1\frac{1}{2}$ grains) of the eucaine solution is injected; then, after a few seconds, the needle is pushed on without causing any pain and a further quantity injected. This is continued until the needle has entered the subcutaneous tissue to the hilt. After withdrawing the needle and refilling the syringe, the process is recommenced at the point last anesthetized; and this is continued until the entire field of operation is slightly infiltrated. The deeper parts of the inflamed tissues can be injected through the same punctures; pus cavities are, of course, to be avoided as much as possible. In many cases the eucaine injection causes a little burning after pain a few hours later, which may be removed or avoided entirely by the employment of a moist antiseptic dressing.

When correctly used the 2 per cent to 5 per cent beta-eucaine solution, in quantities entirely innocuous and much smaller than those used by Schleich, effect a long continued and perfectly satisfactory anesthesia. It may be said with truth that beta-eucaine, even if not entirely free from all faults, is the very best material at our disposal for infiltration anesthesia. In strong solution it is applicable everywhere where the Schleich solutions can be used. The question as to whether mechanical infiltration or chemical action is preferable for infiltration anesthesia seems to be decided in favor of the latter.

A Plea For Practitioners in Small Towns.

By DR. ROLAND S. VAN HISE, Covington, O.

One can but marvel at the great number of papers read and discussed before the many dental societies throughout the country relative to the higher education and more thorough preliminary training of the young man who wishes to take up the practice of dentistry, and yet note that they are all presented from the standpoint of the city practitioner who depends only on an aristocratic patronage, and who knows nothing whatever of the trials and hardships endured by his less fortunate brother who labors among the middle and poorer classes of the rural districts.

The city dentist can remain at his office a limited number of hours each day, and demand for his services what he thinks they are worth, while the country dentist is compelled to work early and late, and sometimes is compelled to take what he can get regardless of the value of his services.

It is apparent, from the trend of the different articles written on this subject, that the object of this higher education is to elevate the standard of dentistry to a level with these aristocratic practitioners, by making it compulsory, if possible, for all graduates to charge a uniform price of so much per hour.

The cry has been to educate the populace to care for their teeth. But while it is possible to educate them to preserve their dental organs, it is not possible to extract from them a fabulous fee for the services of the dentist.

If the requirements for admission into the different colleges are raised, say to an academic education, all dentists graduating will be equally well equipped, mentally and socially, and each will, of course,

think himself entitled to receive consideration only from the best class of patients. There will be none among these young men who will go into the country and settle among a class of people inferior to himself socially, and who will be unable to reimburse him for the performance of services, the learning of which it was necessary for the young man to sacrifice so much time and money.

The sequel of this, it appears, will be that the field of dentistry will become limited, and the great mass of the human family will necessarily be compelled to neglect their teeth, owing to their inability to pay the large fees demanded by the dentist.

While it is not intended to give the impression that all dentists who are today entering the ranks are as well educated as they should be, it is intended to show that there is a possibility, in the future, of elevating the standard to such an extent as to do more harm than good.

More real good could be accomplished by requiring, as well as a fair education, a good moral character in those who apply for admission into the colleges. It should also be required that he keep this good character after graduation, and that he should practice according to the code of ethics, with the understanding that if he does not, his diploma will be recalled.

The Paris Congress.

By DR. J. FREMONT BURKET, Kingman, Kas.

To the dentist looking toward Europe in 1900, two events beckoned; the International Dental Congress and the Paris Exposition. Either one was enough to take him across the Atlantic. The two doubly repaid the trip. It was a happy thought to hold the Second International Dental Congress at the time of the Paris Exposition.

The general results of an International Dental meeting are, ever increased fraternal feeling, broadened views and the stimulation of science and art. The Paris Congress was no exception to that rule.

The specific results are not so easily determined nor expressed. It is the aim of such a congress to give, in every branch of dentistry, a representation of the latest research in science and its highest development in art. While this aim was not fully realized in every branch, in some it went even farther and pointed the onward trend of research and development. An example of this may be cited in Dr. Case's paper, in which he indicated the future basis of observation and study in orthodontia;

also in Dr. Tellier's paper, in which, after summing up present data and knowledge, he pointed out the promising lines of investigation in the subject of the nutrition of the dentine.

Here is where not only the specialist, but the practical dentist as well, is benefited. Enabled to observe and comprehend present attainment, he is prepared for further investigation and development.

Two very important steps in the generalization of the principles of dental hygiene, and the establishment of public dental service, were brought before the section of dental hygiene. Dr. Poinsoot gave an account of his pioneer work in establishing public dental service for the insane and the poor of Paris, in the Department of the Seine. Perhaps no wider or deeper charity has ever been instituted. Along the same line, but with still greater significance to humanity, was Dr. Verluysen's report on the organized dental service in the kindergartens and schools of Brussels and Antwerp. If the visiting delegates will take the initiative step in bringing about a like public dental service in their respective countries, the results of the Paris Congress will be truly beneficent.

One thing that attracted my attention was the extracting room, which, in this age, might be termed the room of horrors. The administration of the anesthesia might hardly be termed an advance over fifteen or twenty years ago.

The possibilities of the use of the Roentgen ray in dentistry, as demonstrated at the congress, are too apparent for comment.

Examples of American dental art, as exhibited at the Paris Exposition, would justify foreigners in concluding that the American people were in a barbarous state, having the customs and tastes of barbarians, with their glaring gold teeth with diamond settings. I refer to the dental exhibit from Peoria, Ill. It was an insult to American civilization, and a disgrace to American dentistry.

The International Dental Congress of 1900 was truly a French Congress. It may have been courtesy to the French for an English-speaking dentist to read his paper in French, but the English-speaking delegates hardly considered it a necessary courtesy. Though a foreigner may be able to read and translate French, he will find it difficult to comprehend a scientific paper in that language when read by some one else.

The Paris congress emphasized one point by which future programme makers would do well to profit. The shorter scientific papers, with time for discussion, makes for interest and helpfulness. The lengthy paper that is simply read and passed by, might as well be relegated to the dental journals and published proceedings, as it is only there it can be mentally digested and appreciated.

The long distance between the different places for holding the meetings and clinics was a serious disadvantage, especially to foreigners unfamiliar with the city. It made it impossible to witness many very interesting clinics.

Considered as a whole, it was a great congress, liberally planned and faithfully executed; but, at its close, the American dentist could still feel that, though France is the acknowledged birthplace of modern dentistry, America is the land of its highest achievement.

Professional Inconsistency.

By JEAN CLINE, D.D.S., Portland, Ore.

The medical profession of the United States, in its dealings with the individual members of the profession of dentistry, is peculiarly inconsistent.

They seldom hesitate to call on us for our professional services whenever in need of same, and as a result of their acquaintance with our attainments and desires they acknowledge our professional standing, yet when the co-ordinate action of both professions is necessary to further any attempt of either for individual or mutual betterment, they either attempt its accomplishment alone, or, should we constitute the principal movers of a course of action, hold themselves strangely aloof from any connection with it, active or passive.

This is especially noticeable in connection with any legislative attempts of either. The old maxim that in union there is strength seems to be practically ignored, and the medical profession boldly start rolling the many-wheeled car of State without thought or recognition of a brother profession, whose ultimate purpose and desires are, as a rule, exactly similar to their own.

Many of these abortive attempts would be wonderfully successful, if the assistance and influence of the leading dentists in that locality were invoked.

So frequently do the medical men act alone, that our State Societies have apparently accepted the theory that it is useless to ask the medical men to depart from what seems to be their orthodox sphere of action, so the State Dental Societies, in their turn, go forth to do legal battle alone and unattended.

**Co-operation of
Medical and
Dental Societies.**

This error, for error it is, can be easily remedied. The two State Societies, meeting as they generally do in the metropolis of their state, can, with a minimum inconvenience, arrange a common date for their respective assemblies, and in a series of harmonious joint meetings formulate and cause to be passed a series of such laws as will certainly cripple, if not entirely obliterate, all forms of illegal practice. The results will be for the professions one of their crowning achievements, and the twentieth century laymen will reap the benefit of the services of two professions, the members of which will be educated men, and not, as is the case at present, be composed in part of individuals who should have been farm hands or hod carriers.

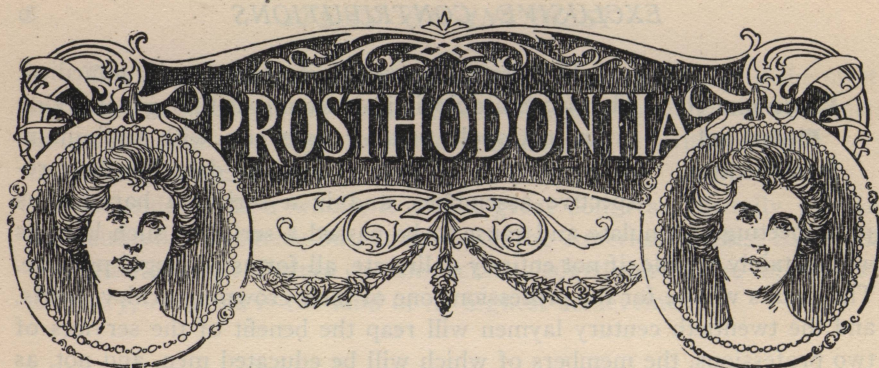
This statement may seem visionary to some who have never given the subject its proper amount of thought, but if it is visionary, I wish to say that it is a very practical vision, and that the date of its fulfilment can be fixed at will by the leading spirits of our State Societies.

There is still another thought which I wish to incorporate in this short article, and while it is not a matter of the highest importance to the advance of professionalism, nevertheless it is a fact, and being such should not be slighted nor ignored.

We daily see our leading physicians, men on whose professional and moral life there is no stain of dishonorable thought or improper action, aiding by their professional services and by their recommendations a class of dentists who are in every sense of the term just as much quacks as are those medical parasites whose advertisements of balms and cure-alls so persistently appear in the public print.

Ask a physician to assist in any way whatsoever a medical quack, and you will receive a prompt and emphatic refusal, but let the applicant for his services be a dental quack, and in nearly every case you will find the physician ready and willing to earn a fee. It is my opinion that for the most part this is done without thought of the harm resulting, and yet even so, it is inexcusable carelessness on the part of men who are justly credited with brilliant minds.

This practice while in itself not a matter of vital importance to the success of our profession, yet is naturally annoying, and by a few well-chosen statements the members of our profession could easily make it clear to their medical associates that this practice is not only unpleasant to them as dentists, but is also clearly a breach of professional ethics.



**The Retention of Full Upper Dentures.
A Symposium by Teachers in the Dental Schools.***

The Philosophy of Retention of Upper Dentures.

By PROF. GEO. B. SNOW, University of Buffalo, Dental Department.

A full upper denture is retained in its place in the mouth by adhesion. It must be sufficiently well fitted to the alveolar ridge and palate at its edges to exclude the air, and it must not lose its contact with the gum during mastication, for air would then be admitted under it and its adhesion would be lost.

The alveolar ridge varies in hardness, being in some instances so hard as to yield but little to pressure, while in other cases it is soft and flabby from the absorption of the osseous tissue under it. That part of the palate which is covered by the denture is not of equal hardness throughout its entire area, being usually quite hard in the center and soft on either side at the rear.

If the plate is a perfect reproduction of a plaster impression as regards its fit, and thus a perfect counterpart of the alveolar ridge and palatal arch, its contact with these parts will be equal at all points. But, if the center line of the palate is harder and more resistant than the gum, and if pressure be made upon one side in the region occupied by the bicuspid or first molars, the gum at that point will yield, the hard palate will form a fulcrum, and the plate will leave the gum on the opposite side. As a consequence air will enter and the plate will drop. If, however, the conformation of the plate is such that it bears only upon the alveolar ridge and a narrow strip across the palate at the rear, leaving a vacancy between it and the palate in the center, its adhesion will not be im-

*Contributions to the discussion of this subject are invited from our readers.—EDITOR.

paired but increased, and when pressure is applied to it as before, the center of the plate will approach the palate instead of rocking upon it and the adhesion of the plate will still be unimpaired.

That a full upper denture should be in close contact with the gum and palate at its edges but must clear the palate at its center is a fact which is generally known and the required vacuity is produced in the center of the plate, either by trimming off the palatal portion of the impression before running the model or by an addition made to the model itself. It is sometimes thinned out gradually at its edges, when it is known as an "imperceptible relief." It is, at other times, made with abrupt, square edges, forming a well defined impression in the center of the plate, when it is termed an "air chamber," or "vacuum chamber."

**Relief
and Vacuum
Chambers.**

Two entirely distinct functions have been attributed to this depression, as betokened by the names given it. One is the relief of the plate from contact with the hard center of the palate, to prevent its tipping and dislodgment, as has been already explained.

The other is the formation of a cavity from which the air can be partially exhausted so that the plate will be held against the roof of the mouth by the partial vacuum thus obtained. In the first case the depression will be made co-extensive with the hard area of the palate, as ascertained by a careful examination of the parts, and will be made no deeper than is necessary to accomplish the purpose designed. In the other case, the "air chamber" is put in arbitrarily and if it does not extend far enough forward the plate is left to rock upon that portion of the hard part of the palate left in contact.

As to the after effects of this procedure, it may be observed that the square edged "air chamber" usually leaves its mark in the mouth. The mucous membrane and even the bone of the palate itself may be brought down into the cavity and the irritation caused by the edge of the chamber will frequently cause congestion of the mucous membrane. These effects are not noticeable when the "imperceptible relief" is used.

Another fact must not be lost sight of in the consideration of this subject. Absorption of the alveolar ridge is apt to continue so that a well fitting plate may, after a time, lose its fit. The "imperceptible relief" enables the plate to follow the gum as it flattens, and so to retain its fit to the mouth longer than it otherwise would.

There are other things not pertinent to this discussion which have much to do with the comfort and usefulness of artificial dentures. Beading the edges of the plate so that the bead will sink into the mucous membrane and exclude the air more perfectly. The trimming of the model to throw increased bearing upon soft spots in the front part of the alveolar

ridge. The proper conformation of the labial and buccal edges of the plate so that the muscles of the lips and cheeks may help to sustain the plate. The correct articulation and arrangement of the teeth. All these have their effects and must receive due consideration before the best results can be attained.

Vacuum Chambers Beneficial.

By PROF. ROBERT H. NONES, Medico-Chirurgical College of Philadelphia, Dental Department.

I have always considered vacuum chambers in artificial dentures, when properly made and placed, beneficial to the denture, and almost invariably place them in the dentures I make; having been generally successful with their use may be the reason for continuing to do so.

Contrary to general opinion, however, I believe the air chamber is of value not merely temporarily, which of itself is of great value. The first impression upon patients frequently is a lasting one and when they place the denture in position and drawing it to place it stays in at once with a strong suction, it is more satisfactory than the instruction so frequently given them, "to wear the denture and in due time the mouth will adapt itself to the plate and suction will result." It frequently does, but just as frequently the patient becomes discouraged, their relatives or friends were not troubled in that way, and by comparison with other dentures they find that this cavity in the plate has been left out, and, by the way, this comparison of dentures does not apply only to the uneducated, but at times to some of the most refined and intelligent patients. But it has its permanent value, contrary to the argument made by many that the membrane is drawn down into and completely filling the chamber, thereby obliterating its use. Such cases being greatly the exception rather than the rule; if the plate be kept out of the mouth but for a short time the parts will return to a normal condition, or partly so, showing the amount of pressure created and kept up at that particular point.

Again, unsuccessful although well made and nicely adapted dentures, on account of lack of suction, may frequently be made successful by carving a vacuum chamber in them. It is true many successful dentures are made without the aid of a vacuum chamber. It is the abuse of them not the use which is to be condemned. They are often improperly made, incorrectly located, too deep or too shallow, too large or too small, an-

gular rather than nicely curved, rough sharp edges in contradistinction to smooth rounded ones.

The plan followed personally is as follows: A small, rather than a large chamber, not too thick or thin, rather medium, about the thickness of a five-cent piece, placed as chamber metal on model, not carved in impression or built on model, as near the center of the mouth as outline of denture will permit. The mouth should be studied and variations made accordingly and not, as is frequently done, placing on a model an old chamber which has done service for many others.

Value of Vacuum Chambers.

By PROF. S. H. GUILFORD, Philadelphia Dental College and Hospital of Oral Surgery.

I am very glad to add my testimony in favor of retaining full upper dentures in place by means of the vacuum cavity.

I have used the method for thirty-five years and am fully convinced of its value.

Much careless writing has been indulged in by those who argue against it and in many cases their so-called facts are at fault. The arguments of the opponents of the method are:

1. That a perfect vacuum between the plate and the tissues of the roof of the mouth cannot be created and that therefore atmospheric pressure does not play any part in keeping the plate in position.
2. That a plate with or without a vacuum-chamber is kept in place by simple adhesion between the moisture covering the mucous membrane and the plate.
3. That if a vacuum chamber is an aid to keeping the plate in place the space is soon filled up with the soft membrane and its utility quickly dissipated.
4. That the cavity in the plate irritates the soft tissues by their being drawn into it and is productive of harmful results.

The first objection scarcely needs a reply except to state (what everybody does or should know) that a perfect vacuum does not exist anywhere in nature.

If it did exist in the case of a plate such a plate could not be worn on account of the extreme pressure of fifteen pounds to the square inch. A partial vacuum is all that is needed, and that is what is obtained.

To the second we would say that mucous adhesion undoubtedly serves a purpose in helping to retain a plate in place and in certain ex-

ceptional cases it may be quite sufficient for the purpose; but, on the other hand, we have never known any advocates of the adhesion theory who did not "trim the impression a little over the hard portions of the palate to equalize the pressure."

Now the truth is that the parts thus relieved will not touch the palate, so there can be no adhesion at such points.

More than this, in thus "relieving" certain parts they are unconsciously forming a veritable vacuum chamber and it is the exhaustion of the air from these portions that gives the plate much of the stability they admire.

The third objection is valid to a certain extent.

Undoubtedly the tissues are more or less forced into the cavity by the expansion of the air in and beneath them; more so, of course, where they are soft and flabby, but it is very rare that the entire chamber becomes filled with them and so long as there is any remaining space the atmospheric pressure will avail in keeping the plate in place.

Even, however, should all the space be thus filled up it will be occurring so gradually that the patient will not notice the difference and by the time it is complete the plate and wearer will have become thoroughly accustomed to one another.

The fourth objection is true under certain conditions. If the chamber is made deep with sharply defined borders, the latter will often produce inflammation, but a well-informed dentist will always smooth or round the borders and will not make the chamber deep.

A shallow chamber of considerable extent is found to be better in every way than a smaller and deeper one.

I am satisfied that a chamber properly formed has many advantages and very few disadvantages.

In any plate made from a vegetable base the vacuum chamber can be enlarged with a bur from time to time should this become necessary. Nearly every practitioner has resorted to this expedient.

Dentures Retained by Adhesion.

By PROF. I. NORMAN BROOMELL, Pennsylvania College of Dental Surgery.

It is a truthful saying that Nature abhors a vacuum, and in this is resident the gist of the subject under consideration. To prove the fallacy of the vacuum theory of plate retention one has but to recall the multiplicity of terms employed when it becomes necessary to refer to the cav-

ity created for this purpose. It has been referred to as the "vacuum chamber;" Richardson styles it the "air chamber;" Gould defines a "vacuum plate" as "one having an air chamber to assist in its retention in the mouth," while others speak of the "suction cavity," etc. All of these conditions are present at one time or another, but never all at the same time. As early as 1850 Harris describes the "atmospheric pressure or suction method" of retaining plates in the mouth, according the system equal value in upper or lower cases. At the same time he says that "the firmness of the *adhesion* of the plate depends upon the accuracy of the adaptation." It would appear, therefore, that fifty years ago, as at the present time, two natural forces were considered as being put to profitable use in the retention of plate dentures, atmospheric pressure and adhesion. I desire to make the assertion, however, that only one of these forces, adhesion, can justly be considered in this connection. If atmospheric pressure was a force exerted in certain directions only then we might consider its possible value as a factor in plate retention, but as this force is equalized, being as great from within as from without, it is impossible for it to serve permanently the function accorded it in prosthesis. Theoretically in adhesion, *a force entirely independent of atmospheric pressure*, we find all that could be desired as a means of support for plate dentures, while in atmospheric pressure we find all the conditions adverse to such support. The functional worth of the "chamber" is limited and of brief duration. It may be a means of partial support until such a time as perfect adaptation between the surface of the plate and mucous membrane takes place, but after this adhesion is the only force at work.

Relief Preferable to Vacuum Chambers.

By PROF. CHAPIN F. LAUDERDALE, Milwaukee Medical College, Dental Department.

In the preparation of an upper model previous to the construction of an artificial denture, I make a careful examination of the mouth, noting the area and degree of the hard and soft parts.

In forming a relief, my aim is to bring the bearing upon the ridge and also to attain a horizontal plane as nearly as is practical.

Adhesion is much greater at right angles to the adhering surfaces. The upper maxilla being approximately in an horizontal position, the

lower maxilla occluding the upper in nearly an horizontal position, the rim of the denture prevents it from moving laterally. Hence the effort to attain an horizontal plane.

Have used the well defined vacuum chamber, aiming to locate it at the center of bearing, also to relieve the hard parts of the palate, with good results; however, am not certain that as good results might not have been attained with a beveled edged relief of the hard parts of the palate, avoiding the disagreeable edge of a sharply defined chamber.

In fine, I use no relief if the palate is normal and presents no harder surface than the ridge.

When relief is necessary I prefer the beveled edge.

Vacuum Chamber a Necessity.

By PROF. J. HALL LEWIS, Dental Department of the Columbian University.

I am thoroughly convinced that a vacuum chamber, properly shaped, placed, adapted and treated, will assist in retaining every superior full denture for some months, and will retain comfortably a majority of them for many years.

I have seen no harmful effects upon the tissues from the pressure of a vacuum chamber, in my own practice, and do not believe that, if properly applied, any injury will ever result.

The vacuum chamber, in outline, should consist entirely of curves. It should have an abrupt, well defined margin, which margin should be highly polished. It should not extend too far forward, but the desired area should be obtained by lateral extension, and, especially, it should be shallow, as a deep chamber is a menace to the tissues involved.

The placing of wax or other material over the plaster model to "relieve the pressure," I regard simply as a "makeshift" or vacuum chamber of irregular and poorly defined outline, which may somewhat assist in retaining the denture, but is much inferior in every way (excepting in appearance) to the honestly placed and acknowledged chamber.

Years ago, I conducted many experiments to settle this question to my own satisfaction, and as a result, I consider the vacuum chamber a boon and necessity to patient and operator alike.

Vacuum Chambers Approved.

By Prof. J. P. GRAY, University of Tennessee, Dental Department.

I heartily agree that there are but few cases where the air chamber will not benefit the patient in wearing the plate. It has been my custom, ever since I began practicing (about twenty-five years ago) to always place an air chamber in the plate. I think the reason so many make plates without air chambers, is that they do not properly adjust the chamber, where it can stand the greatest pressure in the mouth for suction. I do not believe as many do, that the chamber fills entirely unless it is exactly adapted, so that the formation that grows in the suction cavity will take place, and perhaps fill up the space. Suppose it does fill up the chamber to a degree, there is a certain proportion of space left, sufficient to hold the plate in position better than if there were no chamber. I notice that those who do not place a chamber in the plate, almost invariably enlarge the region, and scrape the place so that there is virtually a chamber. It is my custom in teaching students to make a plate, to teach them how to make a cavity, and show them the depth it should be made. I think the cavity chambers sold upon the markets are detrimental, because of their thickness. If the chamber did no other good than to aid the patient, at the beginning, in wearing the plate, it is well worth its place in the laboratory. I believe a well-adjusted air chamber is of inestimable value to the dentist and to the patient. I am truly glad this question has been brought up. I think there is too little known about the condition in the mouth in connection with the use of the air chamber; too little attention paid to it.

Relief Spaces Compared with Vacuum Chambers.

By Prof. GEO. H. WILSON, Western Reserve University, Cleveland, O.

I was educated to use a heavy vacuum chamber, by carving from the impression; which practice I followed for fifteen years. What I say is the result of twenty-seven years practice including pupilage, and ten years as professor of prosthesis. The last four years my practice has been limited to prosthesis.

In vulcanite work I always relieve the pressure over the hard portion of the vault. First, No. 60 tin foil; second, Speyer's surface cohesive forms (made of No. 120 tin); third, rolled tin from 15-1000 to 30-1000 of an inch thick. In metal work I generally use the invisible form of air chamber, so-called. The principal object is to relieve the pressure upon the hard portions, and not use these as a fulcrum over which the denture will rock.

There are advantages but far greater disadvantages in the deep air chambers. There is no question, I think, in the minds of dentists about the air chamber being an aid at first. The contention is in regard to the result after the plate has been worn a few months. I make the following suggestions:

First. The mucous membrane does not attach itself as firmly to a polished surface as to a rough one. Hence the crudely made and unfinished palatine surface may be retained much firmer than the work of a skilful and finished workman.

Second. That a deep air chamber is of permanent retaining value, because of the roughened surface produced. Also the cup-shaped depressions of Speyer's surface cohesion forms will be a better retainer than the plain No. 60 tin foil.

Third. We are under professional obligation to our patients, to secure the health of their mouths rather than the utmost retentive force upon the artificial denture.

Correct Adaptation Sufficient for Retention.

By DR. L. S. GILBERT, University of Denver, Dental Department.

If the regular prepared "air chamber" metal or forms are used, you get more pressure on the hard tissue and less on the soft than desirable, besides the uncertainty of extra work to adjust the metal. If the impression is taken perfectly in plaster of paris, then examine the mucous membrane, ridges, etc., and if there is found to be a large absorption in one part of the mouth and less in another, by carefully noting these conditions, a correct adaptation may be obtained by raising the plate from the hard spots (taking off a portion from the impression), then if soft spots exist, make pressure by scraping from the cast such points as may need it. By preparing the cast and impression in the foregoing manner, you have atmospheric pressure and bearing of the plate suited to each individual case.

Relief or Vacuum Chambers to be Intelligently Used.

By PROF. W. H. FUNDENBERG, Pittsburg Dental College.

The value of vacuum chambers in dentures will depend much upon the general condition of the mouth in which they are used.

The advisability of their use together with size, form and position they should occupy will depend upon the following conditions of the cases presenting: Whether partially or completely edentulous, high or low arch, general form of alveolar process, those with nodular areas, and others with tissues rigid, moderately so, or spongy, and those presenting combinations of some of the above conditions. Shall these be treated alike? if so, failure to obtain the best results must inevitably follow in many instances.

Properly constructed and correctly placed chambers or reliefs are of decided value in the majority of cases for several reasons.

First. By acting as a relief on hard nodular surfaces, they prevent rocking and permit a more uniform contact of the plate when it is in position.

Second. In edentulous mouths preventing contact at the highest point or apex when the plate is first inserted, and thus permitting the denture to settle well on the alveolar ridge without rolling in the center, which will occur in many instances, unless such corrective measures are taken to overcome the expansion in the plaster of paris.

Third. In some mouths they act as a receptacle in which minute particles of air may gather from beneath the plate surrounding the chamber, resulting in closer contact of the plate and tissues.

Fourth. In others securing a good adaptation by partly creating a vacuum in the chamber for a longer or shorter period (depending upon the tissues) and in this way aiding and inspiring confidence on the part of the patient, thereby enabling him to overcome the difficulties attending the first wearing of the denture.

Fifth. In some instances, the presence of a small amount of tissue occupying a vacuum chamber will contribute to the stability of a plate by preventing to a limited extent its displacement by lateral pressure.

In those cases where the arch is high or moderately so, with a good alveolar ridge, free from hard nodular surfaces, I do not find the chamber of much service.

In all cases of dense irregular surfaces on the hard palate, vacuum

chambers as usually applied will be useless, but used as a relief will aid materially in securing uniform adaptation.

In mouths where the tissues are of a spongy texture, vacuum chambers will be of little value. In most partial dentures they can be used to advantage. Probably four-fifths of the cases presenting for dentures, can be benefited by judicious trimming of models and correctly shaping and placing relief or vacuum chambers.

Correct Adaptation Produces Adhesion.

By PROF. E. J. PERRY, Chicago College of Dental Surgery.

I do not advocate the use of vacuum chambers. I do not believe they offer any permanent benefit. A "suction chamber" of any considerable depth is a positive detriment to the mouth; is unscientific and senseless. If a vacuum exist, partial or complete, it is harmful proportionately. An artificial denture is retained in position by the force of capillary adhesion; not by suction in the sense that a vacuum, partial or complete is created by the exhaustion of air from a "suction chamber." The subject is one of absorbing interest. I will briefly state my methods and the methods I have been careful to teach and emphasize in the Chicago College of Dental Surgery for years. I refer to the tissues covering the arch and alveolar ridges as a cushion of varying thickness and density. The bony substructure is irregular to a degree. I make a careful study of these conditions, making the examination with the fingers and recording the same on a diagram. Every mouth will present at least three points for record. At the juncture of the two maxillary bones will be found a hard or harder area which varies in width and length often narrow and running from the plate line forward to the ridge. On the palatine side of the tuberosity on either side of the median line is a soft area. This varies, beginning at about the first molar palatine root, running back to the palate line, widening to the rear of the palate. This area does not begin abruptly, but gradually. These variations in the thickness and density of the membranous cushion can be easily felt and located definitely. Now if a denture shall fit these surfaces absolutely, it is evident that pressure upon the plate will instantly unseat it. Why? Because the plate will ride upon the hard areas and will yield upon the soft. Should a "vacuum chamber" be put in over the hard areas, then the chamber becomes a relief and not a vacuum chamber at all, and this is all any air chamber ever did do; simply act as a relief.

Why not adapt the plate; not fit it. If the surface to be covered by the plate was even in thickness and density absolutely, then, a plate which fit perfectly could with great difficulty be taken out or unseated. But as such is not the case, then it seems to me evident that the plate should be adapted with reference to these conditions. I do this by adding to, or subtracting from, the model. Where the soft areas are I shave to a depth corresponding to the degree of springiness; and I add 20, 40, or 60 tin foil to the model where the hard places are found. I do this all after the flask has been separated. First, after opening the flask I run boiling water over the case to clean it of wax, then, I pack in my rubber, place a piece of the cloth which comes between the sheets of pink rubber over the face of the model; place the case, then, in a flask-press and boil and close. If I have sufficient rubber upon opening, I now remove the cloth, shave the model and add the foil. Then, after I have thus relieved or adapted, I paint the model with library paste and cover the whole with No. 10 tin foil; this latter is intended for a finish for the rubber. Thus virtually I use no air chamber, I only study to adapt the plate to these conditions so that upon pressure the plate will be more firmly seated. The history of the air chamber is interesting. But its use was never founded on scientific principles; and the force which retained a denture in position never was, nor could be, atmospheric pressure, but capillary adhesion, and that force is exerted in proportion as the plate is adapted to the membranous cushion with reference to the conditions in each case.

Vacuum Chambers Should Be Used, Not Abused.

By PROF. NORRIS R. COX, North Pacific Dental College, Portland, Ore.

I am quite well aware the assertion is often made that vacuum chambers should not be used on account of their eventually filling up by the soft tissues being drawn down, and the untoward results that so often follow their use. I am quite willing to admit they *may* eventually become filled up and that bad effects *have* been produced by ill-constructed chambers; but I am not convinced that this is the whole story.

Who would condemn clasps *in toto* because forsooth they had caused the decay and perhaps the loss of good teeth? Nor should vacuum chambers be discarded because once in a great while you will see a case where the condition of the vault was not carefully considered and

the vacuum chamber proportionately formed, great irritation to the soft parts having resulted.

Nor do I believe the soft tissues *generally* fill *completely* the vacuum chamber, especially if, as should be (particularly with dentures of vegetable bases), they are removed at night, after the wearer has become used to them.

Again we are told the stability of a plate is procured by uniform pressure and absolute contact, which is produced (to an unknown extent) by scraping hard parts on impressions, soft parts on models, but what becomes of uniform pressure and absolute contact when occurs, as surely it will in a great majority of cases, the absorption of the alveolar process? Whereas if in those cases the impression and model had been prepared the same, supplemented with vacuum chambers, how much longer and more comfortably the dentures could have been worn?

In the question of vacuum chambers or no vacuum chambers, I tell my class: "The proper course lies somewhere between the two extremes. Make all the dentures without vacuum chambers that you can, but after more than twenty years of more or less success as a prosthetic worker, I unhesitatingly say these are the exceptions rather than the rule."

The use of vacuum chambers, when properly made, is to be recommended if for no other reason than the increased stability they afford to the dentures when *first* inserted.

The Value of Relief Chambers.

By PROF. HARVEY M. KIRK, Ohio Medical University, Dental Department.

I believe a chamber in the palatal portion of a full upper denture to be quite indispensable, yet I have long believed and taught that the *primary* function of the vacuum chamber is *not* suction or air pressure, but the removing or relieving the pressure of the denture upon the hard palatal ridge. This ridge, being hard and unyielding, and found in the majority of mouths, does inevitably cause a rocking or riding of the denture upon it, although the rocking may not be so marked immediately upon the insertion of the denture, as several days subsequent to it.

In a majority of cases a chamber, egg-shaped or elliptical in form, and of the proper size, will usually cover the hard area quite accurately, but this feature should be determined by a close study of the mouth and model.

From the fact that the chamber, properly placed and of the proper shape, size and thickness, does relieve the pressure of the denture by lowering the plate over this hard area, I have thought it fitting to call it a relief chamber. But it also produces quite as much suction as though it were placed there for that special purpose.

On the other hand, if a vacuum chamber be placed in the denture for the purpose of suction only, regardless of the hard area, as much suction will be produced as in the other case, it may be, but the rocking tendency is benefited only to the extent of its covering the hard area.

Relief of pressure, then, being the chief function of the vacuum chamber, suction becomes the secondary function. However, to both the dentist and his patient this secondary function is a most pleasing feature, and that it is most useful to the patient in his first encounter with the denture no one can gainsay.

And yet the lasting qualities of this chamber are largely dependent upon the thickness thereof and the gum texture as well, one or both.

We well know that the gum tissue will be drawn down into the chamber, and, if shallow, will fill it absolutely, and even though it be quite deep there will often be the same result. This condition will, of course, leave the denture entirely dependent upon its adaptation and articulation for its comfortable retention and usefulness. Moreover, I believe that the most essential points governing the comfortable retention and subsequent satisfactory use of the full upper denture to be as follows, in the order named:

1. Faultless adaptation of the denture to the mouth and gums. (This alone will cause considerable capillary attraction or adhesion.)
2. A perfect articulation.
3. A properly constructed relief chamber.

Vacuum Chambers Not Necessary.

By PROF. O. A. WEISS, University of Minnesota.

I have not made a vacuum chamber, with perhaps one or two exceptions, for several years, nor have any been made in our clinic, at the college during the past three years.

As a means of retention of plates, I do not consider anything gained by the use of vacuum chambers that cannot otherwise be obtained. In the vast majority of cases that have come under my observation, where

plates having vacuum chambers were worn, there was found first an unhealthy condition of the mucous membrane corresponding to the vacuum chamber, and filling the same so that no vacuum existed in fact.

My observation has been that with the disappearance of vacuum chambers, much of the so-called "rubber sore mouth" has likewise disappeared.

Instead of vacuum chambers, I depend upon simply perfect adaptation of the plate with relief of pressure along the hard central ridge of the palate, and a slight increase of pressure on the soft places on either side of the central ridge, at the posterior margin of the plate.

When stronger retention than is obtainable by this means is desired, it is obtained by making a very small rounded ridge upon the maxillary surface of the plate near its margin. To relieve the pressure of the plate along the hard central ridge, I prefer to do it by laying two or three thicknesses of No. 60 tin foil on the plaster cast. This makes a more uniform relief than can be obtained by scraping the impression.

**New Use
of Terms
Explained.**

It will be noticed that I have used here a term which does not occur in our text books. All our text books use such bungling descriptions of the surfaces of plates, that I felt the absolute need of more definite terms when going before my classes, and some three or four years ago made use of the adjective maxillary to designate that surface of the plate which rests upon the maxilla. I decided upon maxillary rather than alveolar because, in case of an upper plate, we find it resting upon the palate as well as the alveolar ridge, and as the palate bones might be considered part of the superior maxilla, the term maxillary seemed to best meet the demands.

While the term is not just what could be desired, it is about the only one that can be found, i. e., a simple, universal term, one that will apply to the lower plate as well as the upper.

Then the term lingual is used to designate the surface toward the tongue, which likewise can be used for either upper or lower plate, and conveys a definite idea. Unless some better terms can be found, a long felt want, in speaking or writing about the surfaces of plates, is supplied in these terms.

Vacuum Chambers Useless.

By DR. L. P. HASKELL, Chicago, Ill.

For twenty-five years at least, I have made no use of air chambers whatever in full dentures, except in temporary sets when the plate cannot cover the gums in front. Now this applies to rubber, gold or coin silver sets, no matter how flat or ridgeless, hard or soft conditions. This, too, is an exclusive plate practice.

I work upon the theory that while every dentist knows that the center of the palate is hard and unyielding, multitudes seem to forget that

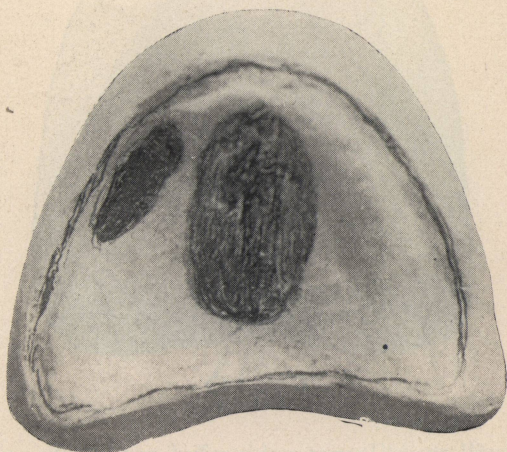


Fig. 1

it is the only portion of the upper jaw that never changes. The alveolar process, as everyone knows, is subject to change. Under rubber, in eighty per cent of cases, thousands of them are made ridgeless or only a flexible ridge left. There is some change under metal, but nothing as compared to rubber. These are established facts as I have observed from fifty-five years of experience in making artificial dentures.

Now, unless provision is made for it, it is only a question of time when the plate will rest and rock over the hard center. If there is an air chamber, the anterior and posterior margins are bearing, and so the plate rocks.

What is the remedy? Simply placing a "relief" over this hard center, which consists of a thin film of wax, extending nearly to the top of the process, and to within one-quarter inch of the posterior margin of the plate, with the margins all around flush with the model. This is the only change I make in a model except, occasionally, to scrape a little between the tuberosity, leaving about one-quarter of an inch in the center undisturbed.

This hard condition of the palate exists in ninety-nine per cent of mouths. In one per cent, it is soft with, usually, a crevice. In such conditions make no change, but fit the plate closely to the palate.



Fig. 2

Some one will say, "Is not your relief practically an air chamber?" No, the plate will adhere just as well without it, providing it does not rest upon the hard surface. You get no results from an air chamber, unless it has well defined margins pressing against the membrane.

In rubber cases, I make the relief in the plate when finishing, or it can be made in the impression. In the case of metal plates, it is better to put the relief upon the model, as one is more certain just what he is doing, than by scraping the impression.

A few words as to methods, which I deem essential in securing the close fit which results in good adhesion.

Plaster impression, Babbitt metal die and a plate as high as can be worn, always higher over the cuspids than elsewhere, and as far back in the palate as can be worn, usually on a line, or nearly so, with base of tuberosities.

My collection of models will show as great a variety of conditions as can be conceived of, concerning some of which many dentists have expressed surprise that the patients could wear plates.

The accompanying two typical models, while resembling each other in general aspect, are entirely different in one important feature.

Fig. 1, which represents a bad condition of the jaw for wearing a denture as one ever sees, illustrates ninety-nine per cent of superior maxillary in the hardness of the palatal surface, requiring a "relief," or thin film of wax, to prevent rocking of the plate where a flexible ridge exists, or sooner or later a recession of alveolar ridge.

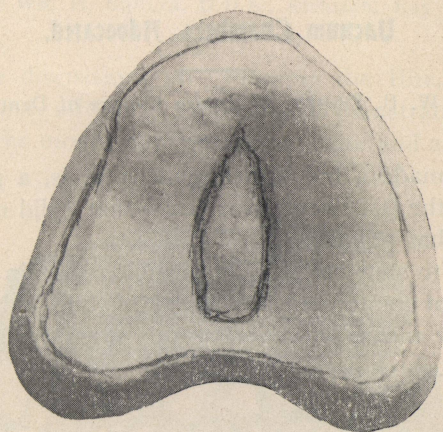


Fig. 3

In this case, the ridge is flexible except on the right side where it is hard, owing to removal of bone, in case of necrosis. Here I have placed also a "relief," indicated by line, as also in the palate.

Upon trying in the plate, and pressing up with the finger, found I could not remove it without an instrument, and patient said, eighteen months after, that he often forgot he was wearing artificial teeth, having had previously six failures.

Fig. 2 represents one per cent of mouths, where the palatal surface is soft, with usually a crevice in the center. In these cases, the plate is fitted closely to every portion of the palate.

This was a gold plate with rubber attachments. Adhesion was strong. The patient was a campaign speaker, and left a few days after its insertion, returning at the end of three months, saying it was a complete success.

I would say farther that, in this class of cases, I have better results with rubber plates.

Fig. 3 illustrates a peculiar class of cases, of which I have had many, showing an abnormal growth of bone over the palate. In these cases, the "relief" is of the utmost importance because, if the plate rests upon it, there will surely be irritation. I have never found any difficulty, however, in securing good adhesion, remembering that the plate must extend far enough beyond the elevation to have a resting place on the membrane.

Vacuum Chambers Advocated.

By PROF. W. B. FINNEY, Baltimore College of Dental Surgery.

I have not made a full upper plate (that is, a plate covering the hard palate), for the last twenty-five years, that I did not clear or relieve the pressure at that point.

I desire also to state that it is impossible to retain a plate in position with any degree of comfort for any length of time, unless this precaution is observed. My means of relieving this pressure is usually with the vacuum chamber.



ORTHODONTIA

A Case of Jumping the Bite.

By WM. H. SHULZE, D.D.S., Atchison, Kas.

In reading the discussions on "Jumping the Bite," I thought the presentation of a case, affording a practical demonstration, might be of interest, so I send the models illustrative of before and after treatment.

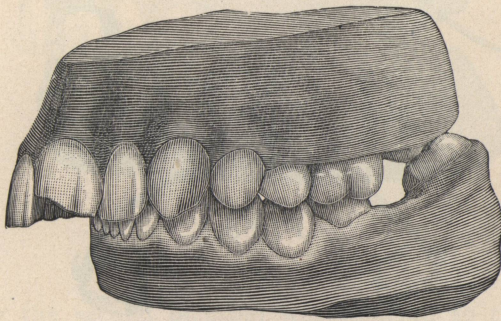


Fig 1.

The original condition is shown in Fig. 1. The last model, Fig. 6, was made a year ago. I saw the boy this summer, and although no retaining appliance has been worn for six months, the relative conditions have improved, as the bicuspid have come into close occlusion and the lower incisors are in contact with the upper. The teeth were defective, necessitating the insertion of seven cement and six alloy fillings before any correction was undertaken.

The broken left central was restored by a porcelain tip as the tooth was vital. The lower right first molar was abscessed, but treated and crowned with gold to which was attached a lug on the buccal side for future use. In the articles and discussions which I have read, there

have been no descriptions or illustrations of the appliances used.* The appliances used in this case were so simple, and accomplished such satisfactory results, that I append a short description with illustrations.

The protrusion of the upper jaw and teeth was hereditary on the maternal side, but this boy's deformity was aggravated by loss of the lower left first molar, and by the lower right bicuspid closing inside of the upper bicuspid, thus restricting the development of the lower jaw. On November 3, 1898, I put an expansion arch wire on the lower

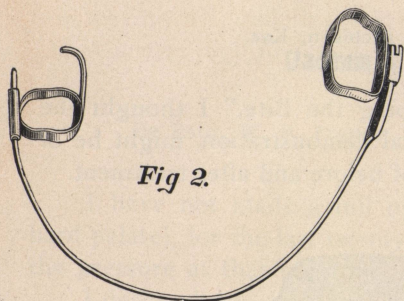


Fig 2.

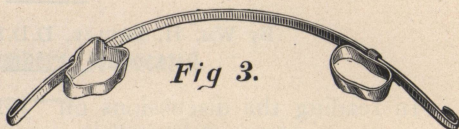


Fig 3.



Fig 4.

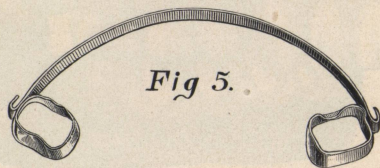


Fig 5.

jaw. (Fig. 2.) The lower second molar was banded with a squared tube on the buccal side, closed at the distal end, which was sawed into, to form a lug for future use.

The lower right first bicuspid was banded with the usual round tube on the buccal side, while on the lingual was soldered a wire to extend around the second bicuspid. The arch wire fitted snugly into the tube, and was squared on the other end to fit into the tube on the molar.

After inserting the end of the wire into the bicuspid tube firmly, it was grasped with pliers near the other end, and turned inward one-quarter turn, and forced into the square tube on the molar. Thus while

*Bite jumping appliances have been often figured.—EDITOR.

the expansion of the right side was progressing, the twist given to the wire was straightening up the left molar. In two months the bicuspid were out in line with the upper bicuspid.

For the upper jaw, bands with open tubes, labially, were fitted and cemented to the cuspids. A springy wire rolled to twenty-four and one-sixteenth inch wide, long enough to extend to the second bicuspid with the ends bent into hooks, was then placed into the open tubes, which were closed enough to keep the flattened wire from slipping out. (Fig. 3.)

Rubber bands, cut from No. 6 tubing, were caught on the hooks and carried over the lugs previously provided, viz., on the lower gold crown and on the band on the second lower left molar. To prevent the latter molar from being carried forward, a metal bridge extending to

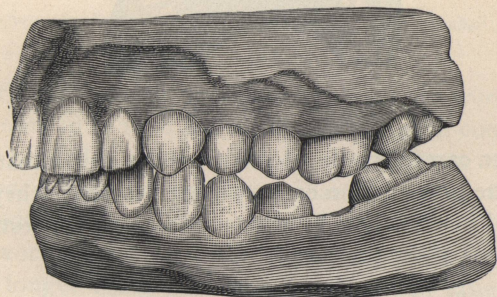


Fig 6.

and embracing the second bicuspid was soldered to the molar band. (Fig. 4.) The force exerted by the rubber bands compelled the lower jaw to move forward, thus eventually jumping the bite.

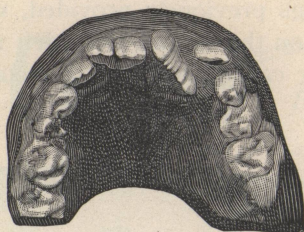
I kept the boy supplied with bands, and when necessary he could easily replace a broken one. As the point of anchorage was distributed over the anterior teeth, they were gradually retracted, the springy band assisting in expanding the arch. Later, the attachment was made to the bicuspid, which improved the expansion. The rubber bands were worn constantly, night and day, except while eating; the boy would sometimes remove them, "when something sticky or stringy would get tangled up in them."

The band soldered to the bicuspid bands with hooks for the rubber bands (Fig. 5) constituted the retaining appliance, which was worn about a year.

A Query.

By DR. E. P. BEADLES, D.D.S., Danville, Va.

The accompanying illustration speaks for itself. There are a double pair of twin centrals—four teeth where there should be two. If it be possible to regulate these “twins,” I do not see that matters will be very much



improved. After careful study of the model, it seems that it may be best to wait, and at the proper time extract these “things” (they can hardly be called teeth), and insert others by whatever plan seems best. I should like to have suggestions about the case.



SOCIETY PAPERS

A Review of Some of the Modern Medicinal Preparations Used in Dentistry.

By DR. R. C. BREWSTER, Brooklyn, N. Y.

Read before the Second District Dental Society, November 12th, 1900.

In the early days of our professional career we were taught that certain remedies were to be used for certain pathological conditions, and these remedies were handed down to us from men whose use of them for a number of years was a sufficient guarantee that, if used as directed, the result would be comparatively certain.

As time wore on, we were confronted with the fact that these same men were no longer using the remedies they had taught us to employ, and to which we had so religiously adhered, but other and newer remedies from which they claimed better results.

This left us the alternative of either following them blindfold and lamblike, or breaking loose and thinking and studying for ourselves, which latter we have resolutely chosen to do, thanks to our ability through the standard of requirement of the dental law.

Meanwhile, the activity prevailing on all sides, especially in the chemical laboratories of the medical profession, in the study of experimental and practical therapeutics, has contributed many new and important facts to this expanding science.

New remedies, studied by the physiological method, are presented to us in the fullest detail of their actions, and old ones are examined anew in the brilliant light of modern scientific methods. Subjected to the strictest physiological tests, remedies are pursued into the closest recesses of Nature, their powers fully ascertained, and their uses suggested from the standpoint of their physiological actions.

Through the publications of the large drug houses such as Parke, Davis & Co., in their "Therapeutical Notes"; Lucius & Bruning, in their

"Therapeutic Progress," and others of the same sort, there have appeared of late mention of many remedies that demand our closest attention because of the physiological action claimed for them. Quite a number of dentists have recognized this claim, procured samples, experimented with them and given the results of their experiments to the profession in the dental journals.

While I do not advocate the injudicious use of new and untried remedies, I do advocate the continual study of such remedies as the chemists and physiologists claim would be useful in our profession, when they give to us a reason for the faith that is in them by setting forth the minutest detail of the chemical and physiological action of the drugs.

We are not all in a position that enables us to do much investigation, but it is surprising how much can be done even under adverse circumstances when our heart is in the work, especially in testing the doctrines of others by our own observations.

One of the remedies that has come especially under my observation through the journals is **orthoform**, with which no doubt you are all familiar. It is a yellowish-white powder, invented by Einhorn & Heinz, Munich, and is a methylated ether, composed of ami-doxy-benzoic acid, tasteless, odorless, non-toxic, non-irritating, antiseptic and a slowly soluble anesthetic producing continuous anesthesia.

Its especial value is its prompt action when applied to exposed nerve terminals, particularly an exposed and aching pulp, which it will keep free from pain during about eight hours. It is also indicated in cases of painful sockets from which teeth have been extracted, and to control pain in the treatment of pyorrhea. All writers agree that for these cases, a twenty-five per cent lanolin unguent gives the best results. My experience agrees with all that I have read on the subject, although in some cases in a modified degree.

George Randorf, of Berlin, Germany, in *ITEMS OF INTEREST*, March, 1899, speaking for Einhorn & Heinz, says that an especial feature of orthoform lies in the fact of its slow solubility, causing anesthesia of very long duration, decreasing the secretions and producing an antiseptic effect. Add to this the claim made by Dr. A. D. Kyner, in the same issue of *ITEMS OF INTEREST*, that it permanently constricts the vasomotor system, and thereby makes it especially adapted to localized inflammations, and we have at once qualities that make it one of our most valuable remedies. Dr. Kyner says as a local anesthetic, it is equally as potent as cocaine, and being practically non-toxic, it can be used with absolute safety.

These writers claim for it analgesic effects on all sores, ulcers, fissures

of the lips, etc., but Kyner says the antiseptic effects have not been proven, but that it is certainly non-irritating.

Randorf says "That orthoform is free from any toxic action is proven by the fact, that in a case of cancer of the face, about fifty grains were applied locally in one week, not only without the slightest inconvenience, but, on the contrary, to the great relief of the patient."

Dr. W. Rotenberger, of Munich, quoting from Neumayer, Hecker, Klaussner and others, says patients have often taken half an ounce or more of orthoform at one time, and in the course of a few months ten or twelve pounds have been applied externally to wounds.

He also claims to remove the sensitiveness in cavities of teeth that are to be excavated, by sealing the orthoform hermetically in the cavity, which has been first thoroughly dried, and leaving it several days, after which the excavation can be done painlessly.

I have treated five sensitive cavities in this way, and the degree of success I obtained was in proportion to the density of the tooth structure. One case only was entirely successful, the tooth being of soft structure.

Dr. Charles A. Nash, of New York, did not get satisfactory results from treating sensitive cavities in this way for twenty-four hours. Probably he did not leave it in long enough.

Dr. Nash claims to get anesthetic effect by applying it to the unbroken mucous membrane, *after* the first five minutes, while Dr. Kyner says, in these cases it has but slight effect. My own experience has been that after five minutes, marked anesthesia was produced. I will narrate one case that was of especial interest to me.

**A Case
from Practice.**

A lower left wisdom tooth, firmly impacted at right angles to the distal surface of the second molar, was extracted by cutting away the surrounding alveolus, leaving a large and lacerated wound. The pain, as is usual in these cases, was very severe, especially at night, but was completely controlled by the use of orthoform.

Any one who has had a case of this kind knows the difficulty in keeping the patient comfortable during the night, and I have often been at my wit's end to relieve the pain without systematic treatment, but orthoform acted like magic.

I dressed the case at 7 o'clock at night, after the patient had eaten his dinner, and this would keep him comfortable until 4 o'clock the next morning when he would be awakened by the pain, which would continue until he could get to my office at 8 o'clock, when I would dress it again, and then it would remain comfortable until 4, when the pain would recur.

The dressing consisted of first flushing the cavity with a one per cent tepid solution of carbolic acid, followed by two syringefuls of three per

cent pyrozone, and then sufficient carbolic solution to wash away the foam, after which one-half grain orthoform powder was placed in the socket and covered with a loosely fitting plug of cotton.

This treatment was continued twelve days, when the patient called my attention to something he felt with his tongue in the socket. I examined it with a probe, and the bottom of the socket felt rough and granular, and I supposed it to be an exfoliated piece of alveolus, but on further examination, by the aid of reflected light, I discovered the socket to be lined with a jet black substance which seemed attached to every portion of the socket. I placed an excavator under the edge on one side, and without much difficulty loosened and removed it, but in doing so broke it in several pieces.

After the removal of this crust, I examined the socket and found it in a perfectly healthy condition, but with no perceptible diminution in the size of the cavity, which should, after twelve days, have been apparent.

My explanation of this crust was, that it was the accumulation of undissolved orthoform with the fibrin and plasma, blackened by the iron in the hematin in the blood.

I sent this crust to Victor Koechl & Co., New York (Agents of Einhorn & Heinz), giving a detailed account of the case, and asked if they could give an explanation, and received the following reply:

"It is altogether likely that the pyrozone solution contains some chemical inimical to orthoform. We are not acquainted with the chemistry, or, rather with the formula, and do not know just what it is, but there are some chemicals that cannot be used either in connection with, or subsequent to the use of orthoform. The carbolic acid solution would not affect the orthoform, but bismuth, formaldehyde, antipyrin, etc., do. It may be that formaldehyde is the basis of this solution, and if so, the trouble can all be charged to that.

"Upon examination with a high power lens, we find a part of the substance to be tissue, evidently from some part of the wound, and which found its way into the socket. The balance is, in our judgment, fibrin from the blood, which has, by chemical action, with the aid of heat, been caused to assume this appearance, and to attach itself to the portion of tissue which was present.

"Just what part an acid or chemical, either in the secretion, or in some other manner, coming into contact with the mixture of orthoform and blood, might exert, is not explainable, unless we were aware of what chemical was used (if any) to flush the socket, or was mixed with the orthoform. That some influence out of the ordinary, however, was at work in this case, is evident, because of the fact that this is the first case of the kind reported, out of many thousands of similar uses to which orthoform has been put.

"It is no exaggeration to say 'thousands of cases,' as this has been the one particular use in dentistry, which has made the remedy so many friends; *i. e.*, packed in cavities after extractions."

The delay in healing caused by the presence of this peculiar deposit is more than compensated for by the great and ready relief secured to the patient by the easy application of so powerful an anesthetic.

Orthoform, however, is restricted in its field of usefulness as an anesthetic, because it is limited to external applications. Recently the inventors have succeeded in finding a soluble form that meets all the requirements of a local anesthetic, and in this form it is known as nirvanin.

It possesses the same anesthetic action as cocaine, over which, however, it has the advantage of non-toxicity, or nearly so. The inventors claim it to be one-tenth as toxic as cocaine. It does not affect the respiration, nor paralyze the action of the heart. Anxiety, giddiness, vomiting or faintness, which so often occur when cocaine is used, have never been observed. It is used in one, two and five per cent solutions, the latter usually for dental operations.

Dr. W. Rotenberger, Munich, Germany, in an article published in the *Deutsche Zahnärztliche Wochenschrift*, No. 38, claims to have made one hundred and sixty-four extractions with it, one hundred and fifty-five of which were painless, while the other nine were less successful, owing to unfavorable conditions, due to obstacles to infiltration. At one sitting, he claims to have extracted twenty-two teeth and roots without any unpleasant results. For this purpose he used seven syringefuls of two per cent solution.

I wrote to Victor Koechl & Co., and asked them what the maximum or lethal dose of nirvanin would be, and received the following reply:

"The maximum dose of nirvanin, used hypodermically, has been declared by Luxenburger to be 0.8 gram, or about nine grains. The solution generally used has not exceeded that of five per cent. A little calculation will therefore show you that it would be impossible to ever apply the maximum dose of nirvanin in dentistry.

"The antidote, should one be required, would, from a theoretical standpoint, be the application of warmth to the surface, administration of stimulants, such as whiskey internally, strychnia and nitro-glycerine hypodermically. However, of the many thousands of cases that have so far been reported from abroad, as well as by our American physicians, there has never been occasion for an antidote."

They also very kindly sent to me samples of nirvanin in compressed tablets, with directions for making the solution of any desired strength. By this method, fresh solutions are readily made for each case, thus obvi-

ating the necessity of sterilizing by heat, a solution that may have been made up for some time, although it is claimed that the five per cent solution possesses sufficient antiseptic properties to prevent decomposition.

Dr. Marcus, in the *Deutsche Zahnärztliche Wochenschrift*, No. 39, says he obviates the pain caused by the hypodermic needle by the application of a five per cent solution to the gums, which secures superficial anesthesia and disinfection. He also claims that a ten per cent solution is an obtunder of sensitive dentine. In this, however, I have had no success.

All the authors from whom I have quoted, together with my own experiences, agree that the anesthesia produced by hypodermic injections of nirvanin is deep-seated and of long duration; that extractions are, with but few exceptions, painless, with no edema or sloughing, but opinions differ as to the amount of anesthesia produced by applications on unbroken surfaces. My own experience has been that the amount of anesthesia produced depends upon the length of time the solution is kept in contact with the gums.

Another of the recent preparations, by Parke, Davis & Co., is known as chloretone, and a very exhaustive article on its chemical and therapeutic properties is written by E. M. Houghton, M.D., Lecturer on Experimental Pharmacology in the Detroit Medical College, and T. B. Aldrich, Ph.B., Professor of Chemistry in Johns Hopkins University, Baltimore, Md.

It is formed by adding caustic potash to equal parts of chloroform and acetone, and they claim it possesses anesthetic properties in a marked degree, resembling cocaine in many respects, and in their clinical observations they emphasize its anesthetic properties.

It is very soluble in chloroform, acetone, strong alcohol and ether, but sparingly soluble in cold water, and more so in boiling water. At the temperature of the body it sublimates in the form of beautiful white needles. In an aqueous saturated solution we get but one per cent of chloretone, which is the anesthetic equivalent of a four per cent solution of cocaine, with the advantage that it can be used without limit.

Dr. Michael Leo, New York City, in *ITEMS OF INTEREST*, June, 1900, makes two solutions of this drug. The first is fifteen per cent alcohol and eighty-five per cent distilled water, and sufficient chloretone to make a saturated solution. With twenty to twenty-five m. of this solution, he claims to have made several hundred painless extractions.

The second solution he makes by mixing equal parts by weight of ether and chloretone. With this solution, he claims three classes of operations can be done painlessly. First, the removal of live pulps; second, excavation of sensitive cavities; third, the obtunding of gums around roots when setting crowns, by applying the solution on pellets of cotton until

white crystals are visible. For this preparation, he claims all the good qualities of cocaine and beta eucain, with none of their objectionable effects.

H. A. Foster, D.D.S., Omaha, Nebraska, records the painless extraction of eighteen teeth from one patient by injecting a saturated solution of chloretone, "a few drops around the roots of each tooth," but he does not state the total quantity injected, nor whether it was an aqueous or ethereal solution.

Dr. A. J. Walsh, New York City, ITEMS OF INTEREST, April, 1900, gives some very interesting data on this subject, in which he claims better results from the following formula than with an aqueous solution:

R	Chloretone,	1/2 drachm.
	Sulph. ether,	2 drachms.
	Aq. q. s. ad,	1 oz.

This is readily accounted for by the fact that, in the aqueous solution we get but one per cent of chloretone, while in the formula there is seven per cent, because of the alcohol in the ether.

After standing the solution divides, the ethereal at the top, and the aqueous at the bottom of the container, and from the strata at the top (the ethereal), he claims to have had remarkable success is obtunding thirty-six cases of sensitive dentine, and judging from the therapeutical and chemical properties of the ingredient, it is reasonable to suppose it would produce a better result than orthoform or nirvanin.

He also speaks of it in the highest praise for cases in which he applied it topically to the gums previous to adjusting crowns, as well as in many cases in which injections were made for the extraction of teeth.

Another remedy of which I wish to speak is
Argonin. argonin, a comparatively new silver preparation, claimed to possess remarkable antiseptic properties, and indicated in cases of suppuration, chronic abscesses, pus pockets, etc.

With this remedy I have had considerable experience, with results that are not so gratifying as I could wish. Perhaps some of the gentlemen present have had better success with it than I, and if so, I should be glad to know their results. I used a warm, five per cent aqueous solution.

Facial Neuralgia.

By DR. E. A. SMITH, Rome, N. Y.

Read before the Fifth District Dental Society, at Syracuse, N. Y., October, 1900.

The day is coming, in fact has come, when we as dental practitioners will have referred to us by the physicians nearly, if not quite, all cases of neuralgia of the head and face.

Are we competent to take charge of such cases, give them a thorough examination, and return them to the physician with the positive statement that they are or are not caused by some diseased condition of the teeth? What do we understand by neuralgia? Garretson gives the following definition: "Neuralgia, as the appellation has definite application, refers to paroxysmal pains, localized or metastatic, presenting no manifestation of any lesion at the seat of complaint outside of the single phenomenon of pain." The term neuralgia is from the Greek *neuron*, a nerve, and *algia*, pain. *It signifies an effect not a cause.* How often do we hear patients say: "It's only neuralgia I have and not a pain caused by anything," showing that they regard it as a cause of itself. Of course it is well understood that there are many causes of facial neuralgia outside of some diseased condition of the teeth, such as malaria, syphilis, catarrh, etc., but we as dentists have but to be responsible for those causes which originate in the teeth and to these I shall confine this paper.

Diagnosis of Dental Causes of Neuralgia.

Let us suppose that a patient is sent to our office with terrible pains shooting through the face, sides of the head and perhaps the tongue. He has been to his physician and has been told to go to a dentist, have all possibility of trouble from the teeth excluded, then, if he has received no relief, to return. You begin your search. Naturally you look first for an exposed pulp or putrescent pulp and fortunate are you and the patient as well if you find one or the other of these, for then a speedy cure can be easily effected. It is hardly necessary to speak of the means for diagnosis of such a case. The exposed pulp is easily found with cold water or a probe and the putrescent condition by pressure, tapping, appearance of the tooth, its history, etc. But in cases of neuralgia, especially those of long standing, no such cause is found.

Supposing that neither of these exist, we then exclude them and look for an impacted third molar or some other impacted or over-

crowded tooth. Unsuccessful in a search for these, we have left but two likely causes and these the most difficult to find, namely: exostosis and pulp-stone. Now before going farther with the teeth, I believe we have the right to insist that the eye, ear, nose and all other parts be thoroughly examined as this can be done without destruction to any of those parts, while a further examination of the teeth means devitalization or extracting.

This being done we go on seeking the cause in the teeth. We inquire if there has been any uneasiness about any tooth in the hope of finding exostosis; if there has been none and if there are no certain signs of exostosis we defer our search for this and endeavor to find a pulp-stone. As we all know, a pulp-stone or pulp-nodule is a deposit of calcareous matter originating in the blood vessels of the dental pulp as a result of venous congestion or hyperaemia. Therefore we look in the region of the pain for some tooth with a large filling or an abraded surface as these will be most likely to produce the irritation which would cause venous congestion. We can only devitalize the tooth, then try the canals with our finest broach; if no obstacle prevents our reaching the apex of the root, we can feel positive that this tooth is free from that irritant. How far shall we go in this way, devitalizing teeth, before returning to our search for exostosis? I should say, only through those teeth, on the side of the face where pain seems to be, that show some cause for irritation. When we have finished this process without finding the irritant we have but one thing left to do, and that is extract in our further search for exostosis. The question now arises, "which teeth shall we extract?" It seems that the same rule may here be applied as in pulp-stone, namely: Extract the tooth which seems most likely to have had some pulp irritation. It may be from caries, abrasion, overcrowding, or elongation due to loss of occluding tooth. There may be exostosis on a tooth with a perfectly sound crown, but I think that it is more likely to occur on one that is not sound if there be any such in the mouth.

A Case from Practice.

In the early part of August last, a patient was sent to me. He was a man fifty-four years of age, rather anaemic and anything but healthy in appearance. He had been a sufferer from severe facial neuralgia for five years. He had been to several different physicians, and while they had been able to comfort him somewhat by the use of medicines, yet the cause was there and his neuralgia was becoming worse. He had just arisen from a very severe attack which had been of several weeks' duration. The nerve specialist, who had been called during this illness, advised him to have his teeth thoroughly examined

as soon as he was able. I at once asked him something of the character of the pains. And he said that he had had very severe paroxysms in the superior maxillary region on the left side, and pain in the region of the right inferior maxillary as well as in that side of the tongue. I examined his mouth and found his teeth in apparently good condition. He had lost the four superior incisors, left second bicuspid and third molar and the two bicuspids and third molar on the right, also the lower third molars and second bicuspids. Both lower first molars had large amalgam fillings in the occluso-buccal surface and to these I first directed my attention. I drilled through the fillings and found both teeth living. I then took out a large filling in the upper left first bicuspid and found it living also. I then drilled through a small filling in the first superior molar on the same side with the same result. As a thorough examination had been made of all the parts but the teeth, I felt justified in sacrificing pulps in a search for pulp-stone. I devitalized all of the four, one at a time and found that I could get access to all canals of each. Feeling that there was no pulp-stone in these, I decided to extract, in the hope of finding exostosis. I administered nitrous oxide gas and took out first the lower molar on the right side which I had previously devitalized, also the upper left first bicuspid. I found exostosis on the inferior molar but none on the bicuspid. Three days later I extracted the devitalized superior and inferior molars on the left side and found very marked exostosis on the lower, while the upper one broke, leaving the lingual and posterior buccal roots. I secured the lingual root with an alveolar forcep and after the gum had healed somewhat I removed the other root with a pair of pliers. The pain lessened somewhat very soon and after a few days the patient felt very little pain in either side. He has had some pain on the left, however, and it may be necessary to extract more teeth.



The Mummification of the Pulp in Inaccessible or Tortuous Canals.

By DR. HARRY C. WEBB, Syracuse, N. Y.

Read before the Fifth District Dental Society at Syracuse, October 9th, 1900.

In certain conditions of the teeth brought to us to treat in which we find an exposed pulp, especially in the molars, cavities may extend on the buccal surface near or to the gingival margin and distal approximal surface, making it impossible to gain access to the pulp canals without weakening the teeth by cutting through on the occlusal surface, which is necessary if you attempt to remove the pulp from all the canals and introduce the different filling materials to the ends of the roots.

It may seem a strange assertion when I mention that it is not necessary to so weaken the teeth in such condition, and to try and remove the entire pulp of the canals in order to properly fill and preserve the same, notwithstanding the warnings at college and elsewhere of the danger of leaving a portion of the pulp in the roots, and the terrible results of future pain and agony of abscessed teeth, but more trouble is caused by attempting to remove the pulp in very tortuous canals and imperfectly filling the same. Any method of filling such teeth whereby the pain is lessened, and comfort to both patient and operator is saved without losing the artistic appearance or permanency of the operation, seems to me justifiable. It will give the best of satisfaction because less tedious, and overcomes many annoying perplexities. I fully realize the fine work that is being done by other methods of filling such teeth, and I merely offer this, with which I have had success, as an assistance should you care to attempt it.

At the first sitting it is necessary to apply the arsenic of the many preparations of which White's Fibre is the best (because of the small quantity of arsenic that is taken up by the pulp). Dipped in carbolic acid and cocaine crystals, when applied to an exposed pulp and properly sealed, this will destroy a pulp with little or no pain whatever; allow the preparation to remain two or three days only.

Apply the dam where possible, as it is absolutely necessary that the cavity be kept dry and thoroughly aseptic, while preparing the cavity; and remove that portion of the pulp contained in the pulp chamber *only*, using H_2O_2 to check the hemorrhage and cleanse the cavity. Wipe dry and use warm air, then apply the mummifying paste, it being slightly sticky, dip the carrier in the cement powder which will leave the paste in position and

gently press against the remaining portion of the pulp, nearly filling the chamber. Care should be used not to cause too much pressure, as it will produce pain; line the cavity with oxyphosphate and finish with either gold or amalgam. Usually there is no soreness, but possibly a slight amount about the second or third day; no more than is the case in the other methods. Another point is that no change of color is noticed in the teeth treated by this method. Teeth thus treated have been opened after the expiration of one or two years, the cement having washed away, necessitating refilling, in which cases the pulps have been removed, and on examination presented the appearance of a violin string, with no odor whatever.

The formula of the paste is thymol, dried alum, glycerine 5ij (2 drams each), zinc oxide enough to make a paste. Thymol is an acid similar to carbolic acid, without the disagreeable odor. Dissolved in H_2O_2 in the proportion of 1-1000 with addition of a little alcohol it is very useful in dressing unhealthy wounds; mixed with the above elements, it has the properties of combining with animal tissue and thus protecting them against putrefaction. Dried alum is one of the most powerful astringents, as is also zinc oxide; the glycerine is used to form the mass in a paste and preserve the ingredients. On exposure to air the paste becomes hard, so care should be used to keep it well corked.

The Use of Peroxide of Sodium.

By CHARLES J. PETERS, D.D.S., Syracuse, N. Y.

Read before the Fifth District Dental Society at Syracuse, October 10th, 1900.

Peroxide of sodium, Na_2O_2 , was first brought to the attention of the profession by Dr. E. C. Kirk in 1893. It was as a bleaching agent that he first recommended it, and later in the treatment of teeth having putrescent pulps.

I was sufficiently impressed at that time to try and procure some, and finally succeeded by sending to the manufacturer, who was somewhat hard to find, from the fact of there never having been a demand for any in this city, so far as I could learn. It is sold by Roessler & Hasslacher Chemical Co., New York, agents for the Niagara Electro Chemical Co., the makers.

It belongs to that class of oxides called peroxides or dioxides, from the fact of their containing an extra atom of oxygen over the normal oxide of that element. This extra atom of oxygen, being loosely held, becomes an unstable compound, and it is due to the easy parting with this excess

of oxygen, its elimination in the nascent condition, that it is so valuable in bleaching and treatment of teeth.

Without going into detail, it is sufficient to say, that it is analogous to peroxide of hydrogen in its action, the only difference being in the quantity of available oxygen, it being about twenty per cent for $\text{Na}_2 \text{O}_2$, to three per cent for $\text{H}_2 \text{O}_2$ in the ordinary solution.

I believe every member here has used peroxide of hydrogen, and understands the chemistry of its action. Its therapeutic value lies in its oxidizing property, not because it gives up oxygen, but because it gives it up in the active or nascent condition, which means, simply in a state in which its affinity is not satisfied and must unite with more oxygen or other substance to form a complete molecule.

Now understanding this, it is only necessary to imagine the action to be seven to ten times greater than $\text{H}_2 \text{O}_2$, to understand the action of $\text{Na}_2 \text{O}_2$. To put it another way, its value as an oxidizing agent is about equal to twenty-five per cent caustic pyrozone.

But its value so far is only half told. It not only bleaches carious and discolored dentine, but it is a solvent of fats, oils and organic matter in the tubuli of the dentine. It is a non-coagulant. It is in fact a solvent of coagulated albumen, and wherever it reaches, sterilization is complete.

In appearance, peroxide of sodium is a yellow white powder, which, on exposure to the atmosphere, immediately begins the absorption of moisture from it, and in a few minutes becomes a white, bubbly mass of sodium oxide and water.

Method of Using.

For use in the teeth, it is recommended in the form of a solution of about fifty per cent to saturated, but the making of the solution is so uncertain and difficult, and that precious excess of oxygen so easy to slip away, that I have always used the powder dry, picking it up on a broach and thence to the pulp chamber or canal. Contact with the moisture immediately sets up a rapid effervescence, which is intensified by the addition of eight or ten per cent solution of sulphuric or hydrochloric acid.

Wiping away the soapy mass in the cavity, another application is made if necessary. The results obtained are so remarkable as to almost be described as the work of a magician. Wherever the peroxide has come in contact with the dentine, there will be a zone of beautifully bleached white structure and the canal in plain sight. The rapid evolution of gas carries the débris of pulp tissue off with it, and mechanically assists in the cleansing.

In putrescent pulp cases, there is no danger of forcing matter through the apex because of this mechanical lifting, so to speak, of all this bad

matter toward the readier means of exit. In the case of abscess of the blind variety, relief is almost invariably obtained by one treatment.

As a dressing between treatments, I do not know of any drug used by dentists that may not be used with perfect compatibility. Personally, I commonly use a solution of sulphuric acid when I want to enlarge the canals somewhat. With the canals thoroughly cleansed of organic matter by the sodium compound, and the walls widened and enlarged with the sulphuric, I believe they present the very best possible opportunity for successful root filling.

By the use of sodium dioxide, the question of treatment of inaccessible canals was to me solved years ago. A treatment which can remove all putrescent matter from the tubuli of the dentine to their ends, meets with no difficulty whatever in those ever so fine canals, which, while no instrument can trace or even find them, are still much larger than any dentinal tubuli can be, and so they are cleansed and sterilized, too.

Another consideration, sufficient it would seem to bring this material into general use, is the fact that, incidentally, the treatment will prevent discoloration, and the filled tooth is so perfect in color as to quite disarm suspicion of devitalization and pass muster with its vital neighbors.

**Use as a
Bleaching Agent.**

As I stated in the beginning, it was first introduced to the dental profession by Dr. Kirk as a bleaching agent, and its value for this purpose cannot be overestimated, especially in treatment of cases

where the bleaching is accomplished simultaneously with the changing of the tooth to a healthy condition.

In cases of discolored teeth, otherwise healthy, use the sodium for bleaching just the same way, first removing a part of the root filling, leaving the apex sealed. Should the color not be satisfactory, then give one treatment of caustic pyrozone. This will give a whiter effect through the enamel to those teeth of the blue white shade.

To those who use the twenty-five per cent pyrozone for bleaching, I would say that a better and quicker result would be obtained by using the peroxide of sodium first, so as to clean the tubes of the dentine and allow the pyrozone to enter.

The reason for this is that the pyrozone is a coagulant of albumen and actually hardens the contents of the tubuli, preventing its penetration; so by using the sodium compound first, all such matter is dissolved and carried out and the pyrozone may enter. Further than this, even in cases where coagulants have been used, its wonderful solvent power is such that not only will it dissolve organic matter, but will also dissolve the coagulated albumen.

Another advantage besides that of better color is permanency of ob-

tained color. With pyrozone, for instance, we have decolorized dentine. With peroxide of sodium we have removed the discolored matter from the dentine, and get a permanency of color commensurate with the thoroughness of its removal. There is nothing that can take on color again unless improperly filled afterwards.

Enough has been said and written from time to time about the evils arising from excessive dehydration, and many devices have been recommended for bringing about this dryness of the tooth structure, showing that it is practiced to a large extent. The object, of course, is to so thoroughly deprive any remaining animal matter of all moisture, that it must ever after remain inert, and no doubt it does with proper filling. But many have claimed that this treatment makes the teeth brittle and they easily break down in after years. Be this as it may, when peroxide of sodium is used, excessive dehydration is entirely unnecessary, as all such matter is removed.

**Commended
by Other Writers.**

Dr. H. H. Burchard, of Philadelphia, that brilliant young man who has done a great life's work in a very few years, and who died this past summer, in California, at the age of thirty-eight, has said this in regard to peroxide of sodium, in a paper on "Principles of Therapeutics," published in the *Cosmos*: "In a cavity containing decomposing organic matter opening into the general cavity, the stomata of innumerable tubules, and each of these containing matter susceptible to a like decomposition, with the active causes of decomposition in abundance, and the products acting to an increasing extent upon the apical pericementum, rational therapeutics suggests the removal of decomposers and decomposable material, and rendering impossible now or in the future access of irritating products to vital parts."

In this connection, dentistry furnishes a marked example of rational therapeutics in the suggestion of Dr. Kirk as to the use of sodium peroxide in this and kindred conditions. This is about as good an illustration of the application of theory to practice as can be found. It and cocaine are the two ideal remedies in their respective fields. Sodium peroxide in its action combines the properties of sodium hydrate and of hydrogen peroxide, those of fat saponifying albumen, dissolving, sterilizing and bleaching. A union of the properties of kalium, natrium and of pyrozone, and it will be seen that it possesses all the essential features for the treatment of the interiors of dead teeth.

In another place, Dr. Burchard remarks, that he uses a sodium compound dry and discards solutions. In looking through the literature of the subject, he is the only one I can find who speaks of using it dry. In this connection it may be interesting to mention the names of some of the

prominent men who have recommended, in the highest terms, the use of this drug: Dr. G. Carleton Brown, Dr. R. Ottolengui, Dr. Geo. Evans, Dr. Wm. H. Trueman, Dr. O. E. Hill, Dr. F. T. Van Woert, Dr. Turner, and Dr. C. N. Peirce, all well known, and who call it of wonderful or remarkable value.

Sodium peroxide has many other uses in the office which will suggest themselves to the man who employs it, not the least of which is always having at hand an immediate and perfect sterilizer, applicable to almost everything we use, even the mouth mirror and other things which cannot be boiled.

It is cheap, costing about seventy-five cents per pound, and comes in cans so constructed as to preserve it any length of time. It is not unpleasant to patients, and the only care required is to keep it off the mucous membrane, to which it is irritating, and off the clothing, which it would injure if left unnoticed.

Electrical Dehydrator.

By A. R. COOKE, D.D.S., Syracuse, N. Y.

Description of an Instrument Exhibited Before the Fifth District Dental Society.

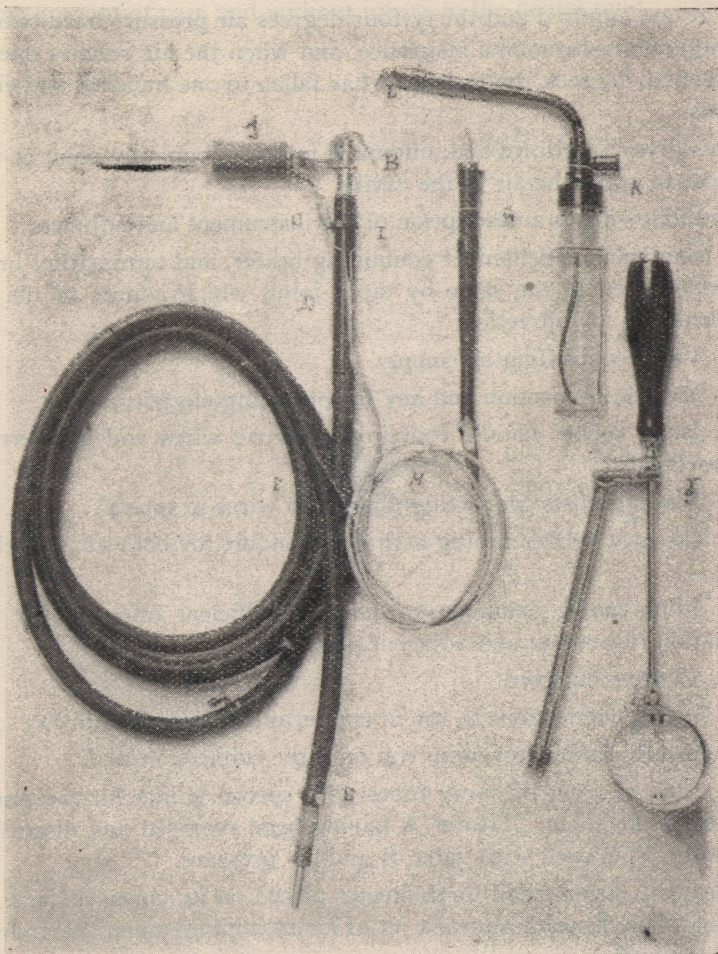
This instrument was designed for use in connection with both an electric current and a compressed air tank. The principal feature is a high resistance electrical heater designed for use upon the regular incandescent circuit of one hundred and ten volts, this particular instrument having a normal resistance of four hundred ohms at seventy degrees Fahrenheit.

It is run in series with a sixteen candle lamp, which precludes the possibility of any trouble by short circuiting, and shows when the current is turned on. No rheostat of any description is used to operate the same, as has been necessary with other instruments of the kind.

Our instruments for dehydrating have all been wrong in principle. Instead of starting with a low temperature and then increasing as the tooth becomes dehydrated, and consequently less sensitive, and in condition to stand an increase of heat, we have been using a blast of air which was hottest when first applied and decreased in temperature, or else was used at a one stated degree.

To meet these requirements, necessitated an instrument in which the temperature of a continuous blast of air increased automatically from the room temperature to about one hundred and fifty degrees Fahrenheit.

This is accomplished by using as a heater, a substance whose electrical conductivity increases very greatly with an increase of temperature. In other words, whose coefficient of electrical resistance decreases as the temperature rises.



Starting with a resistance of four hundred ohms, ten pounds air pressure on one hundred and fourteen volt current, the temperature of the blast of air is as follows, the readings being taken every ten seconds: Seventy-two, seventy-eight, eighty-four, ninety, ninety-eight, one hundred and four, one hundred and eleven, one hundred and sixteen, one hundred

and twenty-one, one hundred and twenty-six, one hundred and twenty-nine, one hundred and thirty-one, one hundred and thirty-four, one hundred and thirty-six, one hundred and thirty-eight, one hundred and thirty-nine and one hundred and forty degrees.

The resistance of the instrument has, in the meantime, been decreasing so that at one hundred and thirty-four degrees air pressure have two hundred and seventy-five ohms resistance, and when the air reaches one hundred and fifty degrees, the resistance has fallen to one hundred and eighty-five ohms.

This gives a uniform and automatic increase from any point at which we choose to apply the air to the cavity.

The following is a description of the instrument and adjuncts:

A is an insulated chamber containing heater, and terminating in a delivery tube fitted to the same by taper joint, which admits of the point being turned in any direction.

B. Valve controlling air supply.

C. Electric connection and key for operating electric current.

D. Hard rubber handle containing electric wires and cup terminals for connections.

E. Binding posts connecting main with wires in tube F.

F. Covered rubber tubing acting as conduit for both air and electric wires.

G. Four candle examination lamp of sufficient intensity for transillumination of antrum and adjacent parts.

H. Conducting cord.

I. Spring connections to use in cup terminals described in D.

J. Mouth illuminator lamp run on same connection as G.

K. One of a set of spray tubes with special points for treatment of pyorrhea pockets, etc. Heater A having been removed and disconnected electrically, K is used with valve B and air pressure.

Heater A has a small thermometer placed on its upper surface, and a very small hole beneath allows a jet of air to impinge upon the under surface of the bulb.

Scale is attached with gradation made by testing temperature of the main air jet with standard thermometer. It is therefore possible to produce any desired heat and know just what the temperature is.

In practice, I begin at one hundred and ten degrees (or a trifle less), run both air and electric currents some thirty seconds, when a temperature of some one hundred and twenty-five degrees will have been reached.

If increasing pain is produced, cut out electric current by key C for a moment, allowing heat to decrease slightly. A nearly uniform temperature may be maintained by alternate opening and closing of electric current.

I am using the instrument daily with much satisfaction in certain classes of cavities where perfect results are very quickly obtained with a minimum amount of pain and without injury to the dental pulp.





Second District Dental Society of the State of New York.

November 12th, 1900.

A regular meeting of the Second District Dental Society of the State of New York, was held on Monday evening, November 12, 1900, at the residence of Dr. A. H. Brockway, No. 13 Greene avenue, Brooklyn, N. Y.

The President, Dr. W. J. Turner, called the meeting to order. The Secretary read the minutes of the last meeting, which, after slight correction, were approved.

Reports of Committees.

In regard to the history of Long Island, I
Dr. Jarvie. have something to say. I think probably some of those present tonight know nothing about this affair, and if I should go over the matter as quickly as possible it would be wise. In the early part of the summer a representative of a certain publishing firm called upon me, saying that his firm were about to publish a history of Long Island, and they wished to have one chapter relating to dentistry. In that chapter they proposed to have a history of the dentistry of Long Island, and the lives and history of a number of men representing the dental profession, together with any little interesting items concerning them. Having had experience on two former occasions with histories of Brooklyn, in which the dental profession were to be represented, and finding when the histories came out that three-quarters of the men mentioned were such as are in dental parlors on Fulton street, it disturbed me a little, and I bethought me how to prevent such a recurrence. I had two or three interviews with the man, between the meetings of the society in summer, and finally submitted this proposition to him: Supposing the Second District Society would give them a list of its members

and what little aid they might be able to in the way of preparing a history would they agree to restrict the representatives of the dental profession to members of the Second District Society, I claiming that in the membership of the Second District Society were about all the reputable dentists in Kings County. I presented the matter to the society at its last meeting in Hempstead, and my understanding was that the matter was referred back to me to carry out, if possible, such a proposition as I had made to this man. The manager of the company, who was also the president, wrote to me in the summer accepting such a proposition, restricting those who should appear as representatives of the dental profession from Long Island to members of the Second District Dental Society, and I should see that he was given the data on which to base a history of dentistry in Long Island. This afternoon I tried to find the letter, but I could not lay my hands on it; this letter probably disappeared from the rest of the correspondence, but my answer to it will explain it.

(Dr. Jarvie read letter).

I saw the manager before I came here tonight and he promises to write me a letter tomorrow accepting these conditions. Of course we know very well that these books are not published for love. They are published for the amount of money that can be gotten from them. If they depart from this agreement all the members of this Society shall be at perfect liberty to withdraw permission to use any reference to their names. I think the man is perfectly honest. It seems to be quite a reputable publishing company. The president of the company himself came with the representative for Brooklyn—Mr. Lynch—and it seemed to me that was the best way of preventing what occurred before. I told him I had no especial interest in it, but I wished to prevent the names of such men as those whose signs we see in Fulton street from appearing in such work, and I should try to prevent the appearance of the name of any man who advertised or who was not a member of this Society. That is the condition, and I will give the Secretary the letter as soon as I get it from him, and a copy of this one, so it may go on record.

Are we certain this restriction would not work some injustice to some worthy men? We want to be a little careful about that. I do not know that it would, but it seems to me there might be cases of reputable and proper men who practise in Brooklyn who are not members of this Society. Of course they ought to be, but they are not. I recall Dr. Cook, who is an ex-member, and Dr. Goddard, of Cambridge Place.

Dr. Brockway.

Dr. Jarvie. There is a clause which meets such cases as this; they cannot put them in without our consent. There is Dr. Race, for instance, to whom, of course, we can have no objection.

Dr. Brockway. That is a wise precaution, because most of you will have noticed, as I have, that in the public prints when any allusion is made to dentists it is always some one who runs a dental parlor, in talking of such operations as you would naturally get at a dental parlor and nowhere else.

The President. There is a committee on educating the public, of which Dr. Hyatt is chairman. Has that committee any report to make?

Dr. Hyatt. There are two suggestions that have occurred to me since the meeting of that committee, and they occurred so recently that I thought it would be preferable to present them before the meeting, instead of calling another committee meeting. They are the following: I found upon inquiry among physicians who have worked and given lectures at the Long Island College that very little is taught to the students of medicine about the importance of the teeth and their relation to the health of patients. I therefore deem it advisable and extremely valuable that some means be followed so that lectures could be given by a dentist, or dentists, before the graduating class—not to try to teach them the anatomy of the teeth or their functions, but rather to impress upon them the importance of the relation of the teeth to health, whereby the graduating class would probably take more care in knowing the condition of their patients' mouths.

Secondly. To try to have lectures given at places where professional nurses are trained. There are places in Brooklyn—the Long Island College, the Maternity Hospital and others where young women are trained to become professional nurses, where very little, if any attention, is given to instructing them in regard to care of the teeth.

Dr. Brewster. I would like to say that a gentleman who for many years was a member of this Society passed away last month in Jamaica. I have reference to Dr. Stephens. Perhaps not many of the gentlemen in this Society were acquainted with him. He was a most estimable gentleman—a gentleman of the old school, so to speak. It was my pleasure to have known him some thirty odd years, and when I saw the notice of his death in the paper I was not only surprised but felt great sorrow that he had

passed away. I think perhaps Dr. Brockway, Dr. Jarvie and Dr. Harris might have known him. It was a pleasure to have known him. It is also a pleasure to refer to the fact that the sorrow of his domestic life, which was certainly a great burden to him, was not too heavy for him to bear; he stood up as a man, as a gentleman and as a Christian, and I take great pleasure on this occasion to speak in his behalf as an exponent of all that is good and worthy.

The paper of the evening was then read by Dr. Brewster, on the subject of "A Review of Some of the Modern Medical Preparations used in Dentistry."

Discussion of Dr. Brewster's Paper.

Experiences with Orthoform, Nirvanin, Chloretone, Etc.

Dr. LeRoy.

I want to say in reference to this that I am very much pleased to have been called upon by you.

One point that struck me very forcibly in the paper was Dr. Brewster's reference to the possibility of some foreign substance in the drug which caused that action. I think that in the light of all that is past, we are not serving our own interest best nor that of our patients by using drugs, the action of which we do not thoroughly understand, or with the composition of which we are not thoroughly acquainted. That subject has been dwelt upon so many times that I think it hardly needs anything more than reiteration. I am averse individually to accepting preparations for use in the office unless I know reasonably well what the composition of them is. We give the pros and cons in discussion before a society and I am just selfish enough to allow someone else to do the experimenting, and I am possibly not old enough to be able to afford to take the responsibility upon myself of experimenting in my practice. We have gotten a great deal of value from drugs that have been placed upon the market—possibly drugs of a similar character—but it behooves us well to be conservative in the handling of them.

Dr. Barker.

I had a little experience with those drugs which Dr. Brewster speaks of—rather limited experience. The orthoform I used in sockets of extracted teeth. It seems to allay pain and irritation and causes the wound to heal nicely. The chloretone has not been a very gratifying success used hypodermically for extraction. It seems to me its anesthetic qualities are rather weak and not as good as some other

things, but when applied for the obtunding of sensitive dentine by ethereal solution it works very well. The nirvanin I think for hypodermic injection is better than chloretone. The insolubility of the chloretone, except in ethereal or alcoholic solutions, is very much against it. In that respect it is difficult to handle sometimes. The nirvanin can be made in aqueous solutions and used very freely hypodermically. Its local anesthesia is very marked, without any adverse sequa.

The nirvanin I have used successfully perhaps
Dr. Hanning. eighteen or twenty times for hypodermic injection, making an aqueous solution, five per cent, and also adding a little oil of cajaput as an antiseptic. I never found sloughing afterward. The chloretone and nirvanin I have used in alcoholic solutions hypodermically; but the chloretone I find works better with a saturated solution in chloroform. The chloroform evaporates very quickly, and in the bottom of the cup you will find the crystals are rather long and six-sided, and there is a peculiar smell of old wet straw. So keep it away from the patient's nose. I either keep the tooth dry with cotton or use the rubber dam, and after three or four minutes' application the cavity is almost entirely obtunded. It always has a marked effect, although sometimes it will, of course, fail. It certainly lessens the sensitiveness.

In regard to the chloretone I have had very
Dr. Ferris. satisfactory results in pyorrheal cases, making the chloroform solution as suggested by the gentleman Dr. Brewster spoke of. Before applying the ethereal solution, however, I have sprayed the sockets with the suprarenal capsule, straining it first through bibulous paper. I spray it well and saturate the sockets with the suprarenal capsule. The capsule is used to drive out the blood from the tissue and gives the chloretone a chance of doing better work. I have had some very satisfactory results with it used in that way. Cases that before I could not touch with my scalers I could get at readily and remove tartar where before I could not.

The part of the paper that struck me most
Dr. Rippler. forcibly was the extraction of that wisdom tooth. I would like to ask why it had to be extracted—if it was a sound tooth and causing pressure upon the second molar and surrounding parts, or whether it was diseased and decayed and had to be taken out for that reason. The essayist speaks in the paper of having to cut away the alveolus around it, and the patient suffered tortures for several days, necessitating the treatment of the socket for

a week or more, keeping the man awake at night and so on. Was it a diseased tooth or not?

I will give you a history of that tooth. There were two causes for the extraction of it; first, because there was a large cavity in it, and second, because it was aching very badly. I did not extract that tooth; I am not looking for honors in that direction. I sent him to Dr. Hasbrouck. He came to me early in the morning, and wished me to extract the tooth; I said I was very busy and my time had to be given to the patient in the chair, but I said there was a gentleman who did such work for me, and I would send him there with a letter of introduction, and he would do it very nicely for him. I gave him the letter; he went, and he returned. When he returned his countenance was quite different from what it was when he started. Perhaps that is sufficient explanation as to the extraction of the tooth. You are mistaken as to the fact that he laid awake for a week. He did nothing of the kind. He had a severe face-ache when he came to me but five or ten minutes afterwards; he was entirely free from pain, simply because I applied orthoform. It certainly acted like magic. I kept that up for twelve days, when my attention was called to this "something" that he felt with his tongue. I found it was rough and granular, and on examining it I found it was inky black. I removed it and broke it in the removal. I think the presence of that accumulation did prevent the contraction and the natural filling up of the healing process, because that was about a week ago, and there is now a very apparent contraction, and he probably will not require to come to see me much longer. But the cavity there was immense. Have I covered that point?

Yes, sir; I did not understand whether you extracted it or not. There are so many old, reliable remedies that we "young" fellows have been accustomed to use for several years that I endorse what Dr. Leroy said about taking in hand haphazard and using all these new-fangled obtundents that are forced upon us by the chemical manufacturers. We use them as Dr. Brewster did, and find once in a while that they do a great deal of good for the time being, but a great deal of harm follows.

No, I do not think harm followed in this case. I think there might have been some retardation in the closing of it, but the relief that man got was all you could hope for. I never have heard of any remedy that could take the place of orthoform in these conditions.

Don't you think by flushing out that socket and putting in for instance phenol sodique and packing the socket you would have gotten the same result?

Dr. Rippler.

No; you get simply the coagulation and the obtunding in that way. This was magic like.

Dr. Brewster.

I have had the same magical effect from first cleansing the socket and applying the phenol sodique having no difficulty afterwards.

Dr. Rippler.

In this case there was a large excavation before the removal of the tooth, almost reaching the ramus of the jaw.

Dr. Brewster.

I would like to say this in defense of the men who use new remedies. We have many reliable remedies, medicines and applications, but it is a fact that sometimes after using all those things we are unsuccessful, and I think any man is justified in using anything that gives results. Patients do not come for fun, and anything that will relieve the pain I think we are justified in using, and when the old remedy does not serve we are justified in trying the new one in that especial case.

Dr. Hanning.

I would like to relate a case very much like Dr. Brewster's, where I got the same results except the deposit. I had to treat it just about as he did—about every twelve hours. I used wine of opium. The lady had a tooth which was extracted in Philadelphia; a good part of the ramus of the lower jaw was removed. I used only the wine of opium with a piece of oakum. I treated it a few days, it healed and there was nothing more to remove.

Dr. Kraemer.

I have taken out many teeth, and I have been very successful with an instrument sold by Ash and Sons. It is not their molar forceps; the jaws open like this and close at a bevel, about like this (illustrating) and they are pretty smooth inside of the beak. I remember a case when I went to Buffalo. The opinion that had been given by one or two dentists in Buffalo was that the tooth could not be removed. The young gentleman had a great deal of trouble with inflammation, and while giving the clinic, he spoke about it and asked that that tooth be taken out. I expressed my opinion that it could, with this instrument, and he was willing to submit to it and sat down in the chair. I worked at it possibly thirty seconds. There was only a little bit of the tooth showing and it was locked under a bit of the distal surface of the twelfth-year molar. I inserted it something like this. By using considerable pressure, the

Dr. Halsey.

end of the tooth started to lift a little. Those who have extracted crooked wisdom teeth will know what I mean. It is surprising how the tissue will give with steady pressure. I have had four cases that I can recall. With that instrument it can be taken out readily. It is the root extractor of Ash's.

A Member.

Suppose the tooth were hooked the other way?

Dr. Halsey.

A wisdom tooth only hooks one way, and that is backward.

Dr. Ferris.

I understood you went down the anterior surface. When you put in a physics forcep, you take the crown and hook it that way. With that forceps, you break the crown off.

Dr. Halsey.

I think those physics forceps are barbarous. I do not use them. Your pressure is thrown only in one direction. You get no lift at all. This other forceps acts as a fulcrum. You have the whole root. You are not only able to lift it, but you unhook it. Any gentleman who has seen the instrument, knows exactly what I mean.

Dr. Hill.

I wish to commend Dr. Brewster and every other man who is willing to sacrifice his time and patients on all the new remedies that come up, and if he tries them all, he will do very little else. The remedies he has dilated upon this evening, are almost all for extracting the teeth. The names of them are not familiar to me, for I do not do that thing much. Vapocaine will do all that in two applications, in cases where you have extracted a tooth and a spicula of the process is left clinging to the gum, and you all know how sore that will be. In several cases of that kind, where I have not done the extraction, I simply put in the vapocaine about twice, and it does the work and is so much nicer and simpler to use. The wine of opium is certainly an old remedy, and there is nothing better, under certain conditions, in the treatment of all inflamed conditions of the gum, pyorrhea and all similar conditions. If you use wine of opium in the treatment of necrosed bone, where you have removed the bone, it excels everything. I have used it since I have been in practice and would not do without it. We have some of the old remedies that are very good, but we are continually hunting for something else. Look at creosote and carbolic acid today? They are the same old remedies, and we cannot get anything in their place. I commend Dr. Brewster for what he does, but I want him to do it on his patients and not mine. I do not ignore the fact that we have improved in our medicines, but take sulphuric acid and the wine of opium and a strong saturated solution of glycerine and tannin. You can make

it by heating. It will take you weeks ordinarily to make it strong, but by heating it, you can get an ounce of glycerine to take up three ounces of tannin, and you will have something there for the treatment of all cases of pyorrhea when they are healing up. I have a case on hand now, a gentleman who for the last ten years has suffered intensely. He came to me about six weeks ago and said: "Hère, can you do anything for my teeth? I have been all over and everybody says they can do nothing for me." Pus was discharging from every one of them, and you could get two-thirds of the way up along the roots into the pockets, from the second bicuspid on the right, around to the other second bicuspid. You use this tannin and glycerine, alternating with wine of opium, because you have new granulations there and you do not want to injure them; you know how soft and velvety and tender they are. A new remedy comparatively with us is peroxide of hydrogen. See how valuable it is. In this case I could not tell with anything else whether there was any pus there. I treated him tonight and went around every one of those teeth with an orange wood stick with cotton on it, and it did not show a bit of pus.

Having the misfortune to have a lower wisdom tooth extracted, I thought it would be a good idea to try this orthoform on myself. I packed the cavity in the hope that the pain would stop, but by twelve o'clock that night the pain was worse than it had been at four in the afternoon, and by three o'clock in the morning I had not had any sleep. I was at home where I had nothing in the house of a dental character, and I remembered that I read in a translation from some French journal, that spirits of ether put on cotton in the ear was a good thing. I did so, went back to bed, and in a few moments a warm sensation pervaded my face; in a few moments more the pain subsided, and shortly after I was sleeping. That was something I had never used in my practice. It must be seven or eight years since I read it. I tried it on myself and it worked with great success. In the journal I spoke of, it said the teeth could be extracted during the effect of ether placed in the ear. I think I would take gas myself.

In answer to Dr. Hill, who commends me so highly for spending so much valuable time and neglecting my patients, and who says he is glad it is not his patients who are neglected or his time that is lost—I would say that I have not spent any unnecessary time and have not neglected any of my patients, and I do not think any of my patients have been injured by the things I have used. On the contrary, it has done them good. One of these remedies I do wish to stand up for, and I will give it my

heartiest endorsement, and that is orthoform, especially in this case where the deposit was made. I do not think any of the remedies these gentlemen have spoken of, or anything I ever heard of excepting systemic treatment, could have allayed the pain as the orthoform did. I wish you would all try it some time when you have a suitable case present. It is as harmless as can be, as far as toxic influence is concerned, and I think reading over the journals that come to us, and paying some attention to them does not take more than a few minutes and sometimes we have a case where what we have read yesterday or a few days ago will help us out. I do not know what I should have done for this young man but for this. I have tried phenol sodique for the last thirty years. I like it, but I do not think it would have helped in this case.

The President. If it is non-toxic, why do you use only half a grain?

Dr. Brewster. It is light in character, and it made probably a half teaspoonful. The recommendations are that it should be tested in the cavity. It was so far back, and after passing the orifice of the cavity it was so extended, that I did not think I used more than necessary.

The Secretary. Is it painful in putting it in?

Dr. Brewster. Not at all; you can hold it in your mouth by the tablespoonful. The gentlemen in Europe have used it by the pound for ulcers, etc., so you may know there is no heart depression or toxicity about it.

Adjournment.

Southern Dental Society of New Jersey.

October Meeting.

The regular meeting of the Southern Dental Society of New Jersey was held October 17, in Masonic Temple, Camden, N. J. President Dr. Duffield in the chair.

After the calling of the roll, the minutes of the last meeting were read and approved. A bill from the A. J. Milliette Co. was ordered paid. It was regularly moved, seconded and carried, that the Executive Committee be empowered to employ a stenographer to attend the meetings of the Society, at their discretion.

At this point the President called upon the members to give any incidents of special interest in their practice recently, and an interesting discussion followed. The President then introduced Dr. C. N. Peirce, Philadelphia, for thirty years Dean of the Pennsylvania College of Dental Surgery, who made some remarks relative to the previous discussion on root absorption, and arsenic for devitalization, which were greatly appreciated, as was also the address which followed on the "Treatment of Deciduous Teeth." Dr. Peirce was tendered a rising vote of thanks by the Society.

Dr. Halsey read a brief paper on "Nitrate of Silver in the Treatment of Deciduous Teeth," which was also very much appreciated.

Owing to the lateness of the hour, Dr. Irwin did not present the paper which he had prepared for the evening, but on motion was asked to present it at the next meeting. Dr. Irwin stated that the charges against Dr. Meeker, of Newark, an honorary member of this Society, by Drs. Brown, Adams and others, had been dismissed by the Governor, there being nothing to support them.

Dr. C. S. Stockton, of Newark, was on motion elected to honorary membership.

The Executive Committee reported favorably on the name of Dr. J. B. Sharp, of Bridgeton, and on motion he was elected to active membership.

<p>Treatment of Deciduous Teeth. Dr. C. N. Peirce.</p>	<p>Dr. C. N. Peirce said that we had to do many things in the treatment of deciduous teeth which were not permissible in the treatment of the permanent teeth.</p>
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The dentist should see a child first at two and one-half years of age and start the little one upon a course of prophylactic treatment, through the assistance of its parent. Antiseptics and antacids should be used in addition to mechanical means. Prepared chalk was not so popular as the antiseptics unless the chalk was flavored with oil of roses, or orris root and sugar. Dr. Peirce's favorite mouth wash is composed of gaultheria, boracic acid, glycerine, alcohol and water. Listerine and glycerine were also recommended.

In children between three and one-half and four years, in whom we find the enamel darkened, indicating a very superficial decay, the speaker said he did not hesitate to use an emery strip, followed with nitrate of silver, which checked further decay in a large measure. For the more perfect application of the nitrate, little felt pads are used, a quantity being kept in a bottle, which had been prepared by dipping the cloth in a forty per cent solution and left to dry, then cut pads in sizes desired. These applications are recommended for approximal surfaces only of the anterior teeth; anywhere posteriorly.

In cavities between molars, facing, where it is difficult to get sufficient undercut to hold a filling independently in each cavity, use pink gutta percha and make a joint filling; alloy would not do for such cases. The elasticity of the gutta percha makes it valuable in these instances.

The most serious cases of deciduous teeth to care for were where the little patient is not brought to us until it has had experiences of toothache. The age of the patient must govern the use of arsenic in such teeth. It would never do to put arsenic in a deciduous molar of a patient ten or eleven years of age. The Doctor said he would not hesitate to make the application to a tooth in a child of five or six years. He would let it remain two days and then only remove the main body of the pulp, making no attempt to get the filaments or to fill the roots. Simply cleanse the cavity after removing the bulbous portion of the pulp, using cloves or gaultheria, and finally fill with pink gutta percha.

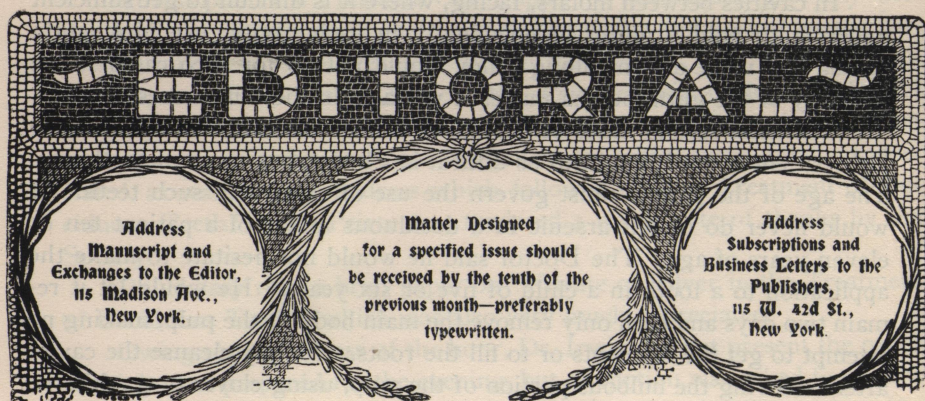
Distinction was made between "congested pulp" and "exposed pulp." In the former, drill through into pulp and let patient go home. The congestion will be relieved, and that is enough for that sitting. Afterward proceed as after the other manner of devitalizing.

In the condition of "swollen face" in a child—abscess, hold the child and relieve the pus. In a day or two syringe out and stop the trouble.

Dr. Peirce's talk was greatly appreciated for its practicability, and he was given a hearty vote of thanks.

Dr. Kirk, of the University of Pennsylvania, will address the next meeting (November 21), and give stereopticon views upon the subject of pathology.





Branches of the National Association.

A Reply to Criticisms.

Criticism
by
Dr. B. F. Arrington. "What Does It Mean?"

In the December number of the *International Dental Journal* there appears an extraordinary article by Dr. B. F. Arrington, the title of which is,

This article is extraordinary because the writer has taken a quotation from our pages which he has entirely failed to interpret, and then, with his misinterpretation as a basis he has erected an edifice full of evil, the discredit of which he then charges to the writer of the original excerpt.

He begins the article as follows: "In the ITEMS OF INTEREST, August issue, 1900, under the heading, 'Snap Shots at the National Association,' the first paragraph reads as follows: 'The National Association held its annual meeting at Old Point Comfort, the picturesque spot where the supposed amalgamation of the old American and Southern Associations occurred three years ago. The idea of having sub-divisions of the association, to be known as Eastern, Western and Southern branches, it is well known now was placed in the constitution as a means of inducing the Southern men to agree to union. From any other viewpoint the plan is bad, and as neither an Eastern nor a Western branch has ever been organized, it is to be hoped that in the not distant future the Southern men themselves will offer an amendment to the constitution abrogating the branches, in which event we will have a truly representative National Association.' "

The following extracts are the salient features of Dr. Arrington's criticism of the above:

"In plain English, this is a frank confession of insincerity, trickery and unfair dealing. . . . Are we to understand by such expressions and open acknowledgment that fraud was premeditated and perpetrated under deceptive disguise to induce agreement to union?

The expression, 'it is well-known now' is unfortunate, for the presumption is clear and undeniable that if it is well known now it certainly was well known then, during the planning and scheming for organization and union, at least to some of the active manipulators. It was nothing more nor less than a shameful act of deliberate deception and professional littleness, unworthy of the occasion and the work involved, and can but be censured and repudiated by all honest, fair-minded men in the profession."

In reply to this, let us take up the statement,

**Reply to
Dr. Arrington.**

"The idea of having sub-divisions of the Association, to be known as Eastern, Western and Southern branches, it is well known now was placed in the

constitution as a means of inducing the Southern men to agree to union."

Really, it would seem that the English here is quite plain and it is believed that all fair minded men will admit that the construction put upon the language of Dr. Arrington is neither logical nor intelligent. It is a bare statement of an absolute fact, and there is no charge whatever that there was any deception or fraud, either intended or carried out. Let us review the situation.

Prior to the formation of the National Association, we had two so-called National bodies: one, the Southern Dental Association, and the other the American Dental Association. A great many efforts were made to amalgamate the two bodies and to found a single National Association, but all efforts were met by an obstacle which seemed insurmountable, and that was the sentimental attachment of the Southern men for their organization. In the final attempt at consolidation it was very well known that the only means of success lay through some plan which would enable the Southern Association to have some sort of seeming continuance. There was no trickery about it, but it is undeniably true that the idea of having sub-divisions in the National body was born in the fact that by no other means could the members of the Southern Association be induced to abandon their organization and come into a single National Society. There certainly was no demand for sub-divisions from the West, as there was no semblance of an asso-

ciation there existing. The American Association proved by immediately disbanding that the demand for branches did not emanate there, certainly not for a branch, which would be, practically, the continuance of the old society. On the contrary, the action of the Southern Dental Association shows conclusively that the need of the clause in the constitution, which included branches within the National Association, originated from the known sentiments of the members of the Southern Association, which immediately, before leaving Old Point Comfort, organized from its existing roll the new Southern Branch of the National Association.

The editor of the *International Dental Journal*, in an editorial in the same number, seems to have adopted in part Dr. Arrington's misinterpretation of the paragraph quoted from the ITEMS OF INTEREST, for he says:

"If the writer in the ITEMS OF INTEREST erred through ignorance, he may be pardoned, but if with malicious intent to stir up ill feeling it cannot be too severely condemned. In any event, it has not a particle of truth to recommend it or to make it worthy the space given."

There is, of course, "not a particle of truth" in the language, if we adopt Dr. Arrington's misinterpretation thereof, but the writer did not err through ignorance, but on the contrary he was present at the meeting of the Southern Dental Association which discussed the proposition of union, and heard a great deal which could not possibly have reached the ears of the editor of the *International*, who was, at that time, presiding over the meetings of the American Dental Association in another hotel.

There can be no denying the fact that whilst apparently the majority of the Southern men were ready for amalgamation, there were a few who did everything in their power to oppose it, and but for men such as these we could undoubtedly have had a truly National Association from the outset, and not one, either with three cumbersome branches, as called for by the constitution, or, as at present existing, with a constitution demanding three branches, of which only one has been organized.

It is a curious fact that Dr. Arrington has only just now awakened to the idea that there could be any wrong in saying that the clause providing for branches was inserted in the constitution as a means of induc-

ing the Southern men to come in, for if he will turn to ITEMS OF INTEREST for 1897, page 800, he will find the writer's ideas of what occurred at Old Point Comfort recorded when the occurrences were quite fresh in his memory in the following language:

"There is an old saying couched in the vernacular which often is so much more expressive than the Queen's English, informing us that 'Hindsight is better than foresight.'

"Before the meeting at Old Point Comfort the question of union of the Southern and American into a National Dental Society was discussed, and it was suggested that there might be tributaries in the East, South and West. This is the plan which was submitted by the committee, and was finally adopted. It seemed wise when offered, because of the fact that the love which the Southern men have for their society was such that the committee and others felt assured that any plan which would disband the Southern would fail and that on such terms union could not be effected.

"But immediately after the adoption of the committee's constitution and by-laws, union being an accomplished fact, it became evident to all who analyzed the situation that the machinery of management for the new National body is cumbersome, and that if not radically altered ultimate failure must ensue.

"The plan presupposes tributary societies in the East, South and West. The Southern men, loyal to that sentiment to which the committee pandered, immediately formed themselves into the Southern Branch of the National Association. Thus with very slight change of form the old Southern Dental Association continues to exist.

"The American, on the contrary, disbanded, and its members made no effort to organize an 'Eastern Section.'"

Dr. Arrington injures his cause materially and practically proves that but for the clause providing for a separate Southern branch the Southern Dental Association would not have joined with the National body, when he uses the following language:

"The expressed hope that 'in the not distant future the Southern men will themselves offer an amendment to the constitution abrogating the branches,' is far fetched. No Southern man, a member of the Southern Dental Association, unless a hireling with a fixed price (there may be such, but I am not willing to believe it), would ever offer such an amendment under existing circumstances."

We had supposed that the Southern Dental Association had ceased to exist, but it is very evident, by the admission of Dr. Arrington, that the Southern Branch of the National, at least in his mind, is but a continuance of the Southern Dental Association. It may surprise him to hear that, though as he says "no member of the Southern Dental As-

sociation will ever offer such an amendment," no such members being in existence, there are a number of members of the Southern Branch of the National who are not hirelings either, who may and very probably will offer such an amendment when the proper time shall have arrived.

Later in his article Dr. Arrington asks why the Eastern and Western branches of the National have not been formed. The editor of the *International*, in his editorial on the subject, gives the true explanation, although he answers only for the East, the reason being that there are already "altogether too many dental associations." But as a matter of unrecorded history it may be interesting to state just what did occur in regard to the formation of an Eastern branch.

In the year succeeding the formation of the National Association a call was issued for a meeting of those interested in the formation of such a branch at Albany, during the meeting of the New York State Dental Society. When the time arrived not more than a dozen men, entitled to take part in the formation of such a branch, were present; nevertheless it seemed evident that such an organization would have been perfected but for the protests of two men who argued, first, that the National had made a mistake in arranging to have branches, and that, therefore, there should be no hurry about forming an Eastern branch, which would perhaps hinder rather than help the work of the main body by attracting to itself papers and visitors who would otherwise lend their assistance to the annual National meeting. Secondly it was argued that it was not fair for so small a representation of the Eastern membership in the National Association to organize an Eastern branch, and that if such a branch were to be formed it should be during some meeting of the National Association, when there could be a large attendance of members.

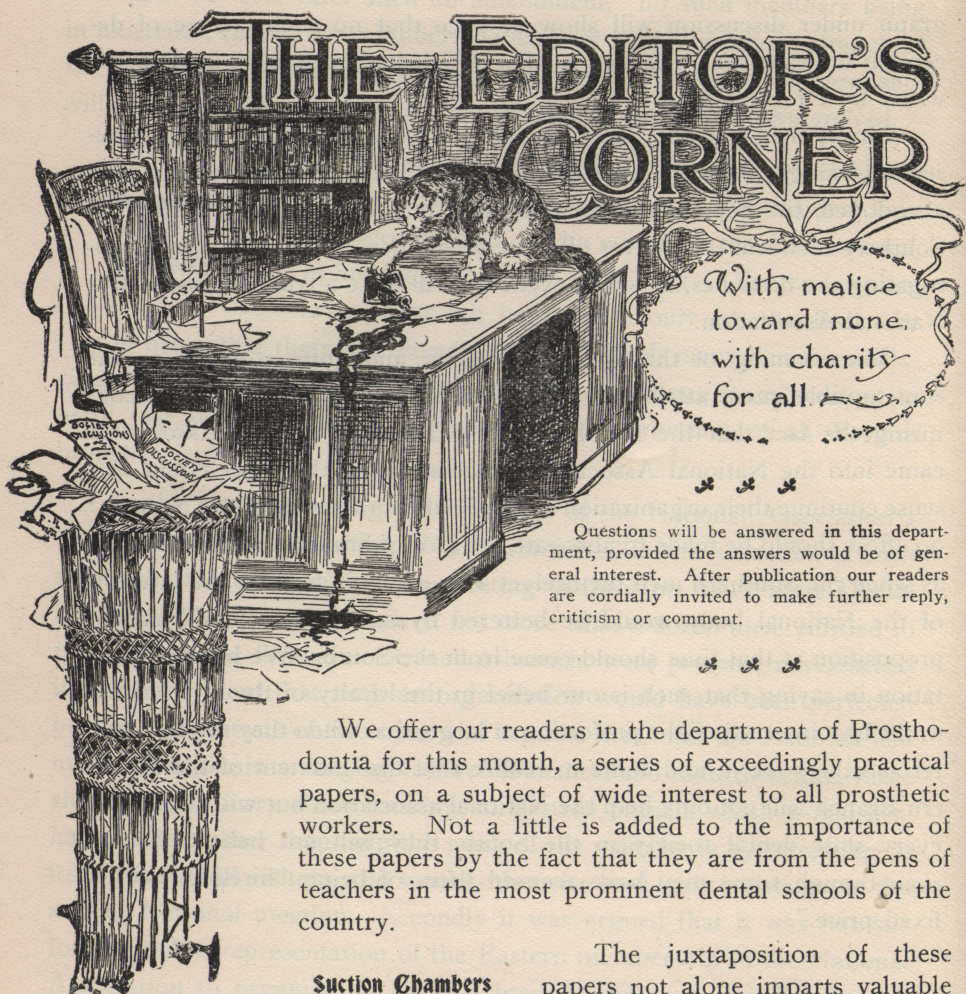
The first argument was voted down and a resolution was passed that an Eastern branch should be formed; but, having gained this point the majority seemed to be afraid of its own power, for it then immediately passed a resolution that no further steps toward organization should be taken until the meeting in Omaha, and that is the last that has been heard of an Eastern branch.

In conclusion a slight explanation of one part of the original paragraph under discussion will show at once that no such charge of deception or fraud was intended as that which has been attributed to the writer by Dr. Arrington.

Firmly believing that the National body will never be a truly representative single National Association until the idea of branches has been abandoned, the hope was expressed "that in the not distant future, the Southern men will themselves offer an amendment to the constitution abrogating the branches, in which event we will have a truly representative National Association."

The meaning of this is quite evident, and quite contrary to the contemptible intent attributed by Dr. Arrington. It means that, recognizing the fact that the members of the Southern Dental Association came into the National Association understanding that they could in a sense continue their organization as the Southern Branch of the National, no effort should be made to abrogate the idea of branches until such time as when the Southern men themselves may come to see that the interests of the National body would be bettered by such action, and that the proposition at that time should come from the South. We have no hesitation in saying that such is our belief in the loyalty of the Southerners to the best interests of the profession at large, that when they see this matter as others see it, and come to realize that disbandment of the Southern Branch will not only help the National association but will strengthen every state dental society in the South, they will not hesitate to act, even though some may have accused them of being "hirelings with a fixed price."





Questions will be answered in this department, provided the answers would be of general interest. After publication our readers are cordially invited to make further reply, criticism or comment.

We offer our readers in the department of Prosthodontia for this month, a series of exceedingly practical papers, on a subject of wide interest to all prosthetic workers. Not a little is added to the importance of these papers by the fact that they are from the pens of teachers in the most prominent dental schools of the country.

Suction Chambers and Relief Spaces.

The juxtaposition of these papers not alone imparts valuable knowledge of the principles involved, but are also interesting as giving an insight into the teaching

in the schools, it being noteworthy that this teaching is not absolutely uniform.

It has been a common thing for men to rise during discussions and say, "I never use a suction chamber. If the plate fits accurately, that is all that is necessary." Such statements have led many to believe that plates could be made upon models produced from accurate impressions, and that such plates would adhere to the upper jaw with sufficient force

to render mastication satisfactory to the patient. It is interesting to note that in the papers in our symposium, no one makes any such claim. The gentlemen who seldom or never resort to what they call "vacuum chambers," nevertheless admit that they build up on the model where they know the parts to be hard and scrape the model when they find extreme softness in the mouth with the intention that the plate, while pressing harder upon these points, will force the soft tissues down so that in the end the plate will rest steadily upon all parts.

In a discussion of these two methods, we seem to be unfortunately without proper terms of description. The phrase "vacuum chamber," taken literally, might apply to either method, for undoubtedly the so-called "relief method" must produce a space of some kind unless the keenest judgment is employed to exactly measure the resiliency of the soft parts, so that when compressed, the part of the plate which had been elevated by the "relief" device would just rest upon the hard parts. It will be seen at a glance that this would, apparently, be a rare accomplishment, and, consequently, there is some justice in the claim that the "relief," after all, produces a "vacuum chamber."

Perhaps the word "chamber" here is not very applicable as there are no defining edges. Several writers claim that plates are not held in position by suction, or, in other words, by atmospheric pressure due to the exhaustion of the air; at least, they say, that if suction does cause it at the outset, it will be but a temporary resort. However this may be, it is an undoubted fact that those who place well-defined chambers in their plates, do so with the idea of causing retention by suction, and, consequently, the phrase "suction chamber" seems applicable. On the other hand, those who depend upon the relief method, perhaps, do not produce really a chamber, but may be said to make a "relief space."

We have now heard from the professors on this subject, but we seem to arrive at no finality, though their contributions, taken together, are peculiarly valuable. There are, undoubtedly, many men not attached to any of the schools who are entitled to express views on this subject because of their practical experience and study of the principles involved. We, therefore, invite all who can contribute anything towards the discovery of the final scientific solution of the many problems relative to the retention of upper plates to contribute their views to our pages.

**Error
Corrected.**

The following letter, from Dr. R. H. M. Dawbarn, calls our attention to a misrepresentation of his views, as reported in a discussion before the New Jersey State Dental Society. While we believe that we have accurately transcribed the report furnished us by the Secretary

of the Society, we are very glad to give Dr. Dawbarn's letter space, and regret exceedingly that he should have been misrepresented in this manner: "My attention has today been called to the ITEMS OF INTEREST's report of my remarks at the New Jersey State Dental Society's meeting in July last. As you are aware, no proof of these remarks was sent to me for correction. In them I am made to say certain things adverse to the character of the examination in dentistry for the State of Massachusetts.

"In reality, I did not allude to that examination by so much as one word. Indeed, I know nothing about it, except its general high repute, and never have prepared a candidate for that Board.

"What I did say had reference to the medical license to practice in that state. Whereas, I no longer 'quiz' candidates, formerly I did so; and I said that it was regrettable that in those days gentlemen wishing to practice medicine in Massachusetts were only required to pass upon practical topics, and not upon anatomy, physiology and chemistry. I also referred in terms of admiration to the excellent laws of New Jersey and New York, in the same matter."

Tests of New Drugs.

In the course of the paper read by Dr. Brewster before the Second District Dental Society, and the discussion which followed, both of which appear in this issue, the question was raised as to the safety of experimenting with new drugs furnished in sample form to the profession by the various manufacturing pharmacists of the country. As this is an important matter, we give space to the following communication from Messrs. Parke, Davis & Co., which seems to be pertinent to the discussion.

"What right has any firm, whose business is to furnish the physician with his principal weapons, to place upon the market pharmaceutical preparations of unknown medicinal value? Should we not expect, yes, even demand, that the producer of fluid extracts make his products conform to some standard of excellence—that he shall indicate what effects his fluid extracts may be expected to have ere he sends them forth from his laboratory?

It has been shown that even drugs selected with care vary most extraordinarily in their percentage of active principles. Witness, for example, this statement by the editor of a leading pharmaceutical journal, who knows whereof he speaks (*Bulletin of Pharmacy*, January, 1899):

"Professor Puckner assayed nineteen samples of belladonna leaves procured, mind you, from dealers who were told that only the best was wanted, and that purchase would depend upon the results of assay. He found these nineteen samples to range in alkaloidal contents from .01 to .51 per cent! The strongest sample fifty-one times as strong as the weakest."

The most careful treatment of such drugs, with the choicest menstrua, and by the most approved processes, will yield preparations that may be fair to look upon, but in medicinal value they will vary just as much as the crude drugs from which they are made. The compensatory remedy for this unfortunate condition is standardization—chemical standardization, when practicable, and when that method is inadmissible, as it often is, physiological standardization. It has been found that certain important drugs cannot be assayed chemically, as their medicinal virtues reside in unstable bodies, and these are readily decomposed in the analytical processes. For this reason the strength of such powerful and useful drugs as digitalis, aconite, convallaria, strophantus, ergot, cannabis Indica and many others cannot be determined satisfactorily by the analytical chemist. However, the problem which proved to be an insurmountable difficulty to the chemist, was solved by the pharmacologist with ease. He tests upon living animals all drugs that cannot be assayed chemically. Dogs, rabbits, fowls and guinea-pigs receive doses of the preparations under examination. Accurate observations of their physiological effects are made, variations are noted and corrected, until the preparations correspond in medicinal strength with the adopted standard extracts.

Formerly the physician was obliged to make his own physiological tests of ergot, digitalis, and so on; not upon dogs and guinea-pigs, however, but upon his patients. The old way was to begin with small doses of powerful drugs and then to push them until the desired effect was produced. The new way is a much better one: it is safer for the patient, more satisfactory to the physician, and it is more scientific. Prompt results are assured, for the physician knows just how much fluid extract of ergot, aconite or cannabis Indica he need include in his initial dose to secure a definite result.

Parke, Davis & Co. began years ago to manufacture a full line of standardized fluid extracts that are guaranteed to be of definite and uniform strength. More recently they devised and perfected methods for standardizing physiologically those important drugs that are incapable of analysis by chemical processes.

**Punishment
of Quackery
in England.**

A correspondent sends us a copy of the following circular letter, which appears over the signature of H. E. Allen, Registrar of the General Medical Council of London, a body which has a general supervision over the legal practice of medicine and

dentistry:

"I have been directed to call the attention of every registered Dentist to the following *Resolution* adopted by the General Medical Council on May 20, 1894, in regard to advertising:

“That the attention of the Council having been called to the practice of advertising by certain Dentists, it is hereby resolved: “That the issue of advertisements of an objectionable character, and especially of such as contain either claims of superiority over other Practitioners, or depreciation of them, may easily be carried so far as to constitute infamous or disgraceful conduct in a professional respect.’”

“At the same time I would desire also to again direct notice to the subjoined *Resolution* adopted by this Council on November 24, 1892, in regard to the important subject of Unqualified Assistants:

“Any Registered Dentist practicing for gain, who knowingly and wilfully deposes a person not registered or qualified to be registered under the *Dentists Act* to treat professionally on his behalf in any matter requiring professional discretion or skill any person requiring operations in Dentistry of a surgical character, will be liable to be dealt with by the General Medical Council as having been guilty of infamous or disgraceful conduct in a professional respect, and to have his name erased from the *Dentists' Register*.’”

The correspondent suggests that it would be well if we could have something of this kind in this country. It will be observed that the General Medical Council, of London, have decided that a certain class of advertising may be so objectionable as to constitute “infamous or disgraceful conduct in a professional respect,” and it is a recorded fact that for such offences, the names of dentists have been stricken from the register, which is tantamount to revocation of license.

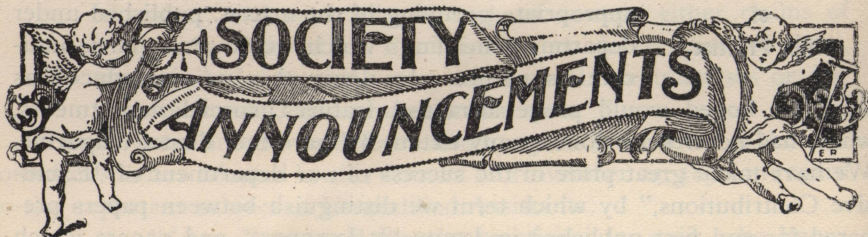
In one part of the present law of the State of New York occurs the following language:

“If any practitioner of dentistry be charged under oath before the board with unprofessional or immoral conduct, or with gross ignorance, or inefficiency in his profession, they shall notify him to appear before them at an appointed time and place, with counsel, if he so desires, to answer said charges, furnishing to him a copy thereof. Upon the report of the board that the accused has been guilty of unprofessional or immoral conduct, or that he is grossly ignorant or inefficient in his profession, the regents may suspend the person so charged from the practice of dentistry for a limited season, or may revoke his license.”

It might be interesting for some one to make complaint against the obnoxious advertisements of some of our quacks, claiming that the same is “unprofessional conduct.” This would afford us an opportunity of testing the law, and of discovering whether the words “unprofessional conduct” have the same meaning in this country as in England.

**Incidents
of
Office Practice.**

When we remodeled ITEMS OF INTEREST four years ago an important feature of the plan was an appropriate grouping of the matter, published under department headings which would at a glance indicate its nature. In doing this we introduced as what we hoped would prove attractive features, special departments, which had never been done to any extent by any other dental magazine. We have taken great pride in the success of our department of "Exclusive Contributions," by which term we distinguish between papers prepared for and first published in ITEMS OF INTEREST, and papers which had already in a sense received publication, having been read before dental societies. Other magazines group both classes of matter under the general heading of "Original Communications." The department of "Orthodontia" and the recently added department of "Prosthodontia" have been satisfactorily well filled, especially as each has been made the single subject of a complete special issue. The department of "Incidents of Office Practice," however, we must admit has not come up to our expectations. We felt confident that, as this is always an attractive "order of business" at society meetings, a special corner of our magazine filled with such histories would be eagerly looked for from month to month by our readers. At first the department was fairly well filled, because of special effort on our part to secure material of this character, and we have published a number of brief papers of great interest. We still have faith in the idea, but the department cannot be a success without the co-operation of our readers. Let each who believes with us that the department has proven of value remember that just as he enjoys reading such articles from other men so others would be glad to read descriptions of singular incidents in his experience. We solicit from our readers contributions to this department. Certainly every dentist has had some occurrence of more than passing interest, something that to him was odd, puzzling, instructive or entertaining. Let each reader of this paragraph recall to his mind the most curious or interesting incident within his experience, immediately write out a description thereof and forward it to us, and the department of "Incidents of Office Practice" will flourish during the coming year and be appreciated by the many thousands of our readers.



National Society Meetings.

National Association of Dental Examiners, Minneapolis, Minn., August, 1901.

National Association of Dental Faculties, Minneapolis, Minn., August, 1901.

National Dental Association, Minneapolis, Minn., August, 1901.

State Society Meetings.

California State Dental Association, Los Angeles, July 9th.

Connecticut State Dental Association, Hartford, May 21st, 22d.

District of Columbia Dental Society, Washington, December.

Florida State Dental Society, Tampa, May 15th, 16th, 17th, 18th.

Illinois State Dental Society, Rockford, May 14th, 15th, 16th, 17th.

Indiana State Dental Association, Indianapolis, June 4th, 5th, 6th.

Maine Dental Society, Old Orchard Beach, July 16th, 17th, 18th.

Missouri State Dental Association, Sedalia, July 9th, 10th, 11th, 12th.

Minnesota State Dental Association, Duluth, August.

New Jersey State Dental Society, Asbury Park, July 17th, 18th, 19th.

New York State Dental Society, Albany, May 8th, 9th.

North Carolina State Dental Society, Morehead City, June 26th, 27th, 28th.

Ohio State Dental Society, Columbus, December 3d, 4th, 5th.

Tennessee State Dental Association, Monteagle, July 2d.

Vermont State Dental Society, Montpelier, March 20th, 21st, 22d.

West Virginia State Dental Society, Mannington, August 29th, 30th.

C. D. A.

The Most Important Question of the Present Day in Dentistry: "Is the Dental Pulp Necessary in Adult Life?"

Some of Our Most Scientific Men Say Not; Many Say Yes.

In order to bring this most important subject before the members of the C. D. A. and their many dental friends, and obtain the consensus of opinion from our representative men, James G. Palmer, D.D.S., of New York, will read a paper in the affirmative on Monday evening, 8:15 p. m., at 943 Broad Street, Newark, N. J., January 21, 1901, and M. L. Rhein, M. D., D.D.S., John I. Hart, D.D.S., of New York; Dr. R. R. Andrews, of Cambridge, Mass., and I. Norman Broomell, D.D.S., of Philadelphia, Pa., will be present and take part in the discussion, and Charles L. Hungerford, of Kansas City, Mo., will send a written reply, while G. V. Black, M. D., of Chicago, Ill.; J. Leon Williams, M. D., D.D.S., of London, England; S. G. Perry, D.D.S., of New York, and Xavier Sudduth, M. D., of Memphis, Tenn., have been invited to contribute papers.

The meeting will be preceded by an banquet at 6:15 p. m., to which the profession are invited. A place will be reserved for all who send a postal to Dr. Chas. A. Meeker, 29 Fulton Street, Newark, N. J., by Saturday noon, January 19. The price per cover will be \$1.00.

Alumni Association of the Chicago College of Dental Surgery.

The eighth annual clinic of the Alumni Association of the Chicago College of Dental Surgery will be held at the college building, corner Wood and Harrison Streets, Wednesday, January 23, 1901. A large attendance is expected, and a cordial invitation is extended to members of the profession.

The programme of clinic will be announced later.

L. S. TENNY, President,
100 State Street, Chicago, Ill.

H. J. GOSLEE, Chairman Executive Committee,
580 W. Madison Street, Chicago, Ill.

New York Odontological Society.

At the annual meeting of the New York Odontological Society, the following officers were elected for the year 1901: President, W. W. Walker; Vice-President, J. F. P. Hodson; Recording Secretary, John I. Hart; Treasurer, F. C. Walker; Curator, J. Adams Bishop; Editor, J. W. Turner; Corresponding Secretary, W. D. Tracy.

W. D. TRACY, Cor. Sec'y.

46 West Thirty-seventh Street, New York.

New York Odontological Society.

The thirty-third anniversary of the New York Odontological Society will take place at the Academy of Medicine, Tuesday, January 15, 1901, at 2 and 8 p. m.

At the afternoon session, beginning at 2 o'clock, Dr. Joseph Head, of Philadelphia, will give a clinic, showing recent advances in the methods of inserting porcelain inlays.

Other clinics of interest will also be given, after which short descriptions of clinics will be given by the clinicians.

In the evening at 8 o'clock Dr. Truman W. Brophy, of Chicago, will read a paper; subject, "The Surgical Treatment of Cleft Palates," illustrated by the use of the stereopticon.

W. D. TRACY, Corresponding Secretary.

46 West Thirty-seventh Street, New York.

Ohio State Dental Society.

At the thirty-fifth annual meeting of the Ohio State Dental Society, held at Columbus, December 4, 5 and 6, 1900, the following officers were elected for the ensuing year: President, H. F. Harvey, Cleveland; First Vice-President, Otto Arnold, Columbus; Second Vice-President, J. B. Beaman, Columbus; Secretary, S. D. Ruggles, Portsmouth; Treasurer, C. I. Keely, Hamilton.

Portsmouth, O.

S. D. RUGGLES, Sec'y.

The Third Pan-American Medical Congress.

The third Pan-American Medical Congress will convene in Havana, Cuba, February 5, 1901. An invitation is extended to dentists who may desire to attend and read papers before Section on Dental and Buccal Surgery. The Committee on Transportation has made the following report on rates for the delegates at the present time: The Southwestern Passenger Association has authorized a rate of one fare for the round trip to Port Tampa, Fla., plus \$2.00 (exclusive of Pullman berths and meals), connecting with the Peninsula & Occidental Steamship Company at Port Tampa, which has authorized a rate of \$36.50 round trip from Port Tampa to Havana, including meals and berths in each direction. This makes the rate through to Havana from Washington, \$70.05; from Cincinnati, \$68.30; from Louisville, \$67.55, and correspondingly low rates from intermediate points. The Trunk Line Association has authorized excursion fare to Washington, added to the fares authorized by the Southwestern Passenger Association, which includes all regular ticketing routes. The Central Traffic and Western Passenger Associations have authorized regular winter tourist rates. Delegates from these territories may find it to their interest to pay local fare to Cincinnati or Louisville and use the authorized rates from these points as outlined above. The Ward Line steamers from New York have authorized a rate, including meals and stateroom in each direction of \$60.00 round trip from New York to Havana, sailing Wednesday and Saturday; time, five days in each direction. Those who use the Ward Line to Havana, paying \$60.00 for the round trip, can return either from Port Tampa or Miami by rail. By returning the unused portion of the ticket a rebate of \$20.00 will be received. These tickets must be purchased from Havana over the Peninsula & Occidental S. S. line to Port Tampa or Miami, and then by rail. No rates so far have been arranged for the New England territory. The United States Fast Mail leaving Washington over the Southern Railway at 11:15 a. m., arrives at Port Tampa, Fla., 10:30 p. m. the next evening, making connection with the steamer leaving Port Tampa at 11 p. m., arriving at Havana the morning of the second day. Extra sleepers will be run from New York over the Pennsylvania Railroad, Southern Railway and Plant System to Port Tampa. The train leaving Cincinnati over the Queen & Crescent route at 8:30 a. m. will arrive at Port Tampa at 10:30 p. m. the following day, connecting with the same steamer. The train leaving Louisville over the Southern Railway at 7:45 a. m. connects with the Cincinnati train at Lexington, Ky., at 10:45 a. m. All these schedules unite at Jacksonville, Fla., and go through to Port Tampa and Havana. It is suggested the delegates

from the East mobilize through Washington, and those from the West through Cincinnati. Those wishing to attend will please send their own names and addresses, and of their party as well, to Eugene S. Talbot, 103 State Street, Chicago, Ill. The information will be forwarded to the Chairman of Transportation so that sleeping car and steamer accommodations may be reserved.

EUGENE S. TALBOT,

Secretary, Section on Dental and Buccal Surgery.

Rhode Island Dental Society.

Resolved, That the Rhode Island Dental Society heartily endorse the work that has been done by Dr. J. N. Crouse as Chairman of the Dental Protective Association, and that we earnestly urge him to continue that good work which we realize has been accomplished at a personal sacrifice of time and money.

District of Columbia Dental Society.

At the thirty-fourth annual meeting of the District of Columbia Dental Society, the following officers were elected for the ensuing year: President, H. Jerome Allen; Vice-President, John H. London; Recording Secretary, Williams Donnally; Corresponding Secretary, Llewellyn F. Davis; Treasurer, Mark F. Finley; Librarian, Henry B. Noble; Essayist, William N. Cogan.

H. JEROME ALLEN, Pres.

421 H Street, N. E., Washington, D. C.

Vermont State Dental Society.

The twenty-fifth annual meeting of the Vermont State Dental Society will be held at Pavilion Hotel, Montpelier, Vt., March 20 to 22, 1901.

Rutland, Vt.

GRACE L. BOSWORTH, Cor. Sec'y.

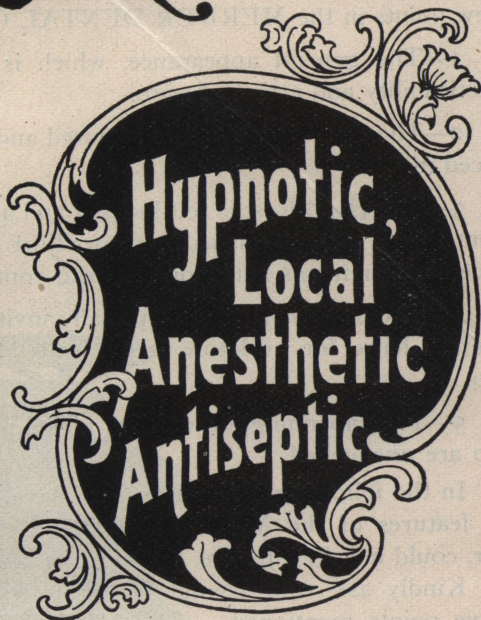
CHLORETONE

TABLETS

3 grain
sugar coated
in bottles
of 100.

CRYSTALS

in ounce
and half ounce
bottles.



(SAMPLE & LITERATURE SENT FREE ON APPLICATION.)

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DETROIT, MICH.

BRANCHES IN NEW YORK, KANSAS CITY,
BALTIMORE, NEW ORLEANS & MONTREAL QUE.
BRANCH LABORATORIES. LONDON, ENG & WALKERVILLE, ONT.

The Merker Dental Chair

We wish to invite the Dental profession to take particular notice of a few points in the MERKER DENTAL CHAIR.

1—The general appearance, which is a combination of thorough practicability and artistic design.

2—The few levers that are required and the handy positions they are placed in.

3—The Head Rest is self-locking and adjustable by the patient. We claim that a head rest is as hard to adjust to a patient's head as it is to place another man's hat upon his head comfortably.

4—The upholstering we especially invite you to compare with other Dental Chairs, for we know that it leads both in quality and workmanship.

5—The Japanning, decoration, nickel plating and general workmanship are unexcelled.

In the following illustrations, we have endeavored to show a few of the features of the MERKER CHAIR. Our best description, however, could not do it justice. It must be seen to be fully appreciated.

Kindly ask your Dental Dealer to explain and show you all the above points mentioned. The MERKER CHAIR is furnished only with the MERKER SELF-LOCKING SECTIONAL HEAD REST.

Price of Chairs.

Best Quality Mohair Plush with Wilton Carpet.....	\$175.00
Best Quality Green Plush with Wilton Carpet.....	180.00
Seal Leather, Green or Tan, with Wilton Carpet to Match.....	182.00

We furnish any of the above upholstering with Chair specially decorated at a very moderate additional cost.

CONSOLIDATED DENTAL MFG. CO.,

115 WEST 42d STREET, NEW YORK.

BRANCHES:

Chicago, Ill.	Philadelphia, Pa.	Brooklyn, N. Y.	Baltimore, Md.	Providence, R. I.
Boston, Mass.	Atlanta, Ga.	New Orleans, La.	Cleveland, O.	Buffalo, N. Y.

The Merker Dental Chair



The Merker Dental Chair in its lowest normal position, measuring $17\frac{1}{2}$ inches from the floor to seat. The lowest pedal lever chair in the world.

The Merker Dental Chair

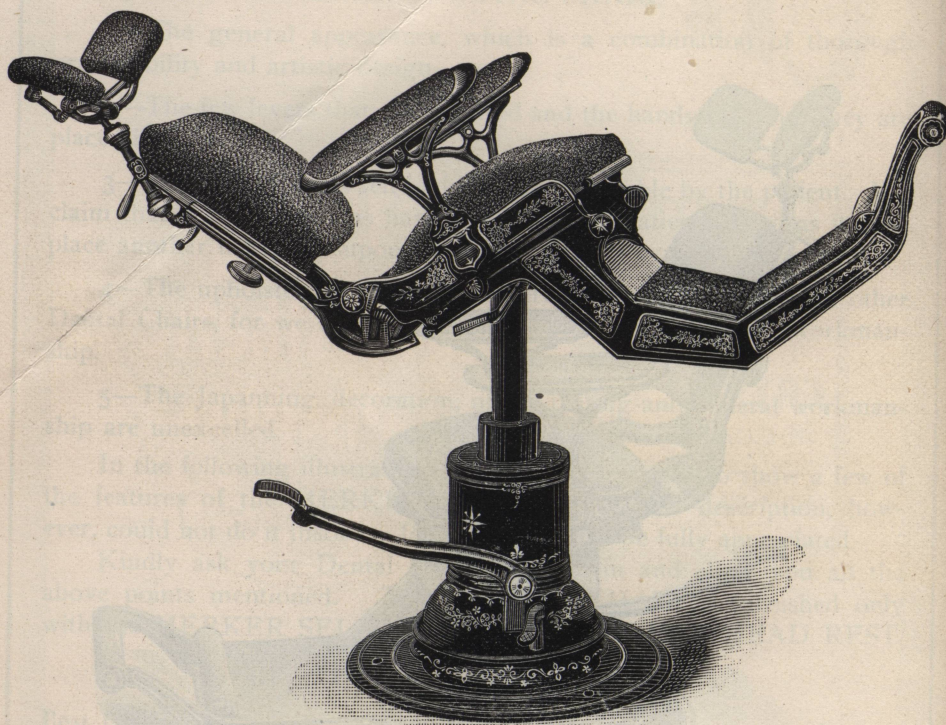
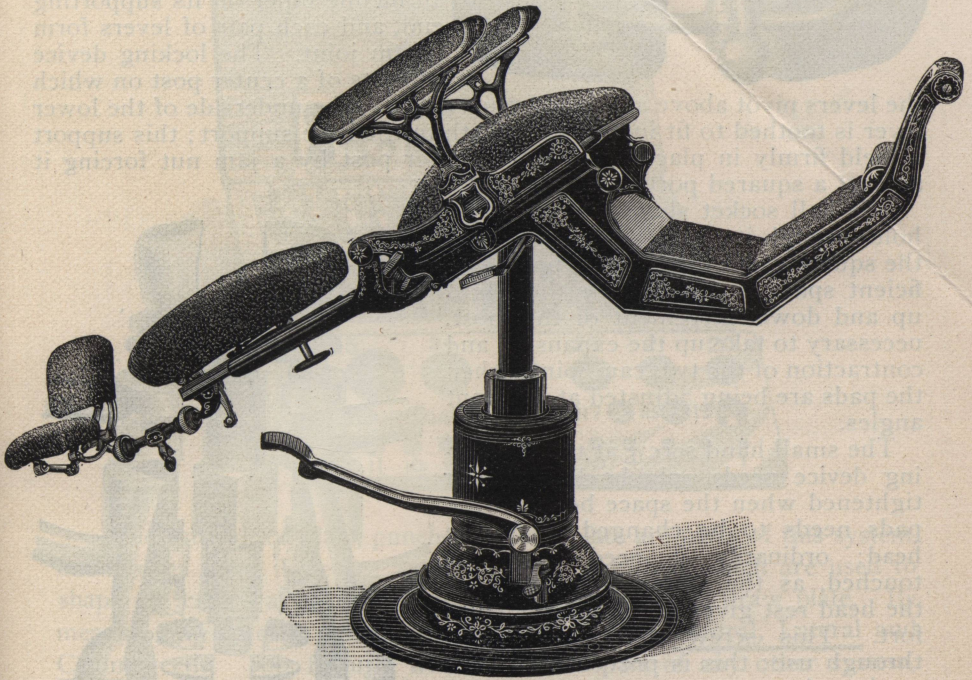


Illustration showing a reclining position at a medium height.

The Merker Dental Chair



This illustration shows the most complete Chloroform Narcosis position that has ever been given in any Dental Chair.

The MERKER CHAIR is the only Dental Chair fitted with a truly Self-Adjusting Head Rest

This is a head rest that will give comfort to the patient and consequent ease of operation to the dentist. It is absolutely self-adjusting by the patient; the mere placing of the head upon the pads locking them firmly in the desired position.

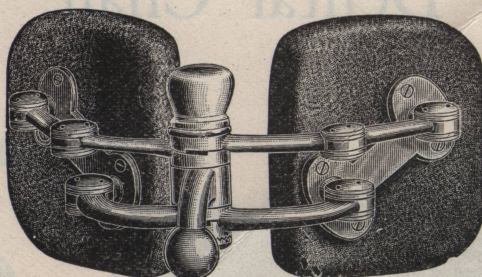


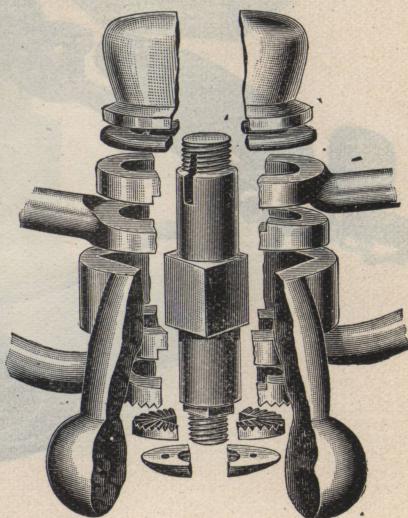
Fig. 1 shows the complete head rest. Each pad is 4 x 5 inches, upholstered to correspond to the upholstery of the chair, and placed upon the levers, as illustrated; the working of these levers is well shown in Fig. 2. Each lever has an incline taper on its supporting end, and each pair of levers form a cam joint. The locking device consists of a center post on which

the levers pivot above and below the center. The underside of the lower lever is toothed to fit into similar teeth in the base support; this support is held firmly in place against the center post by a jam nut forcing it against a squared portion of the post.

The ball socket shank has a square hole through its center into which fits the square part of the center post; sufficient space is allowed for the slight up and down movement of this post, necessary to take up the expansion and contraction of the two cam joints when the pads are being adjusted at different angles.

The small hand screw at top of locking device needs only be loosened or tightened when the space between the pads needs to be changed to fit the head; ordinarily it need never be touched, as the ample adjustment of the head rest gives the necessary comfort. This screw will not tighten through use; this is prevented by the washer shown.

To adjust the head rest place chair and head rest at desired angle; let the patient put a hand under each pad, slightly draw the pads toward each other, arrange the head comfortably in any desired position, let go the pads, and they are locked immediately. The "face" position is secured by pressing the pads together (this disconnects the teeth on the lower lever and base, allowing the levers to pivot) pushing both to the desired side, drawing apart as far as necessary, and the head locks them into position. The weight of the head forces the levers outward, which brings the cam joints together, thus wedging all tightly against the toothed surfaces at the bottom and screw at the top.

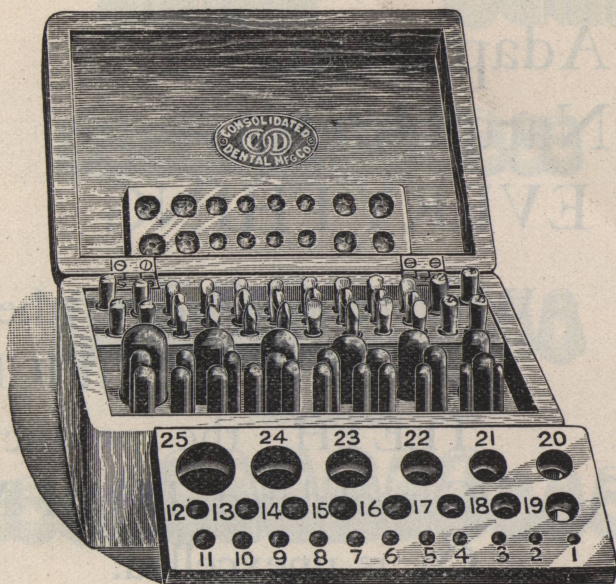


THE SELF-ADJUSTING HEAD REST IS FURNISHED WITH
THE MERKER CHAIR ONLY

CROWNING SYSTEM—STYLE "A."

No. 625 A.

An Improved Apparatus for making Seamless
Contour Crowns.



The usual draw plate, punches and die plate are parts of this system, but besides these there are 32 metal teeth furnished which are used to shape the crown after it has been drawn on the steel draw plate. By means of these teeth crowns can be made for the Central, Lateral and Canine teeth. This feature, which is not a part of any other system, makes it superior to all.

The system is put up in a finely finished oak case.

By following the instructions which we furnish with each outfit, any dentist can, with a little practice, produce a perfect crown; little or no skill being required in its use.

We manufacture a small shaping hammer with a round head especially adapted for use in connection with shaping crowns over the metal teeth in this system.

CROWNING SYSTEM	-	-	-	\$15.00
SHAPING HAMMER EXTRA	-	-	-	1.00

CONSOLIDATED DENTAL MFG. CO.

In Form,
In Strength,
In Texture,
In Adaptation,
In Naturalness,
IN EVERYTHING

Which contributes to the desiderata of ARTIFICIAL TEETH, the product of Consolidated Dental Mfg. Co. is unexcelled.

PRICES OF "CONSOLIDATED" TEETH.

Plain and Gum Rubber, per set of 14,	- -	\$1.50
Flatback, long-pin teeth, each,	- - - -	.16
Davis Porcelain Crowns, each,	- - - -	.40

CASH DISCOUNTS

For Purchases of

\$5.00	\$25.00	\$50.00	\$100.00	Lots
3	5	10	12 1/2	
Per Cent.	Per Cent.	Per Cent.	Per Cent.	

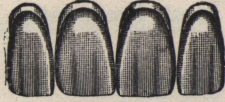
Consolidated Dental Manufacturing Co.'s Porcelain Teeth

Chart of Plain Rubbers, Arranged in Partial and Full Sets, with
Terms to be used in Ordering

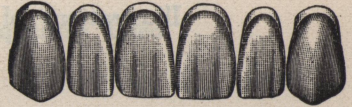
Twos (2s)



Fours (4s)



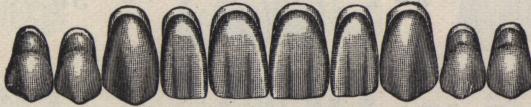
Sizes (6s)



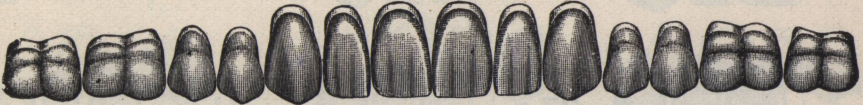
Eights (8s)



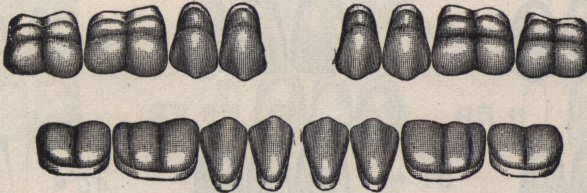
Tens (10s)



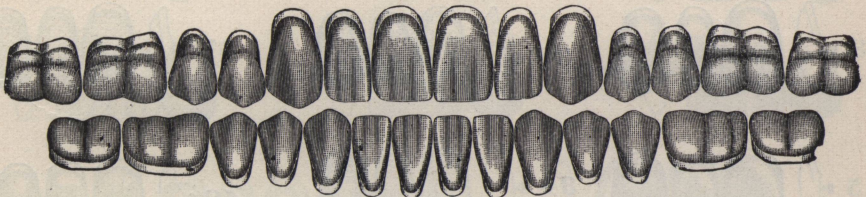
Fourteens (14s)



Sixteens (16s)



Twenty-eights (28s)



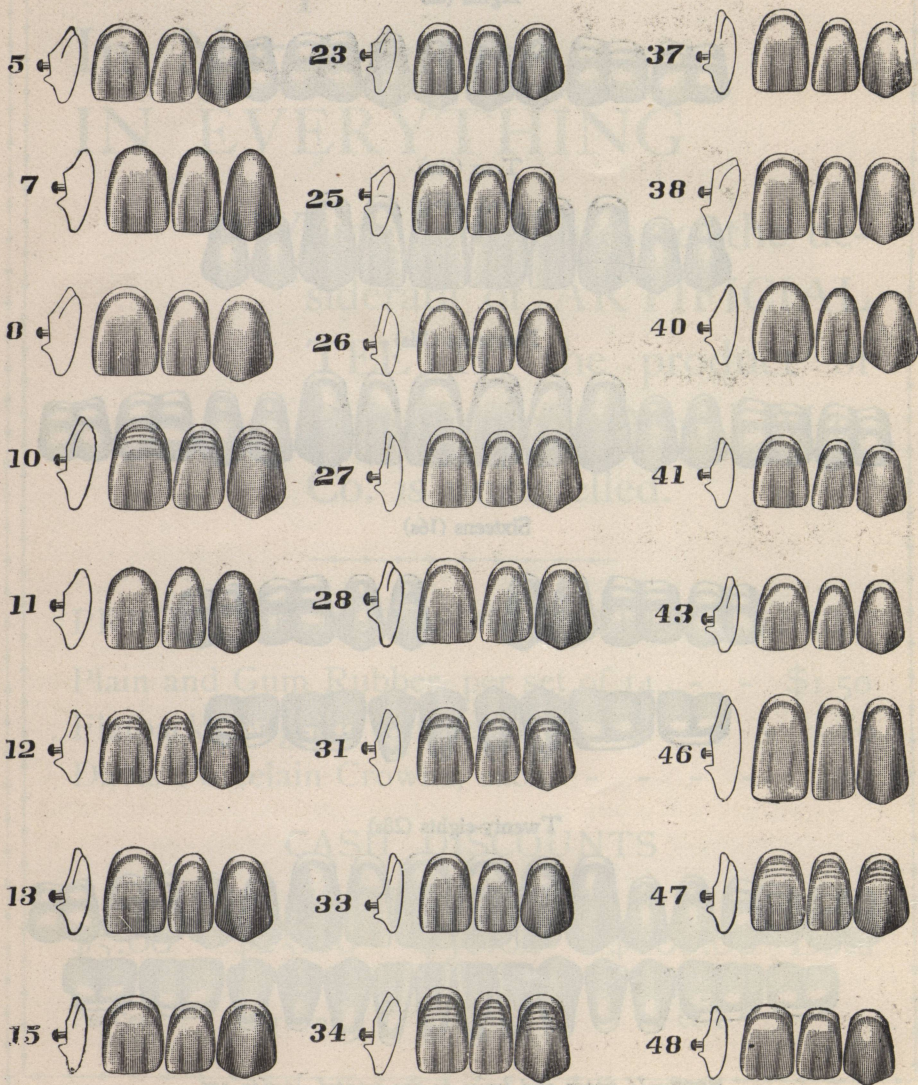
NOTE—If upper and lower bs are wanted, specify 1ss

Consolidated Dental Manufacturing Co.'s Porcelain Teeth

PLAIN RUBBER UPPERS

Illustrations of Moulds Most Frequently Used

(In Sets of 14s.)



Consolidated Dental Manufacturing Co.'s Porcelain Teeth

PLAIN RUBBER UPPERS

Illustrations of Moulds Most Frequently Used

(In Sets of 14s.)

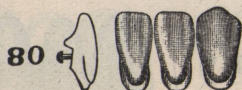
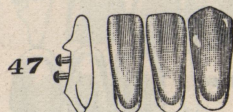


Consolidated Dental Manufacturing Co.'s Porcelain Teeth

PLAIN RUBBER LOWERS

Illustrations of Moulds Most Frequently Used

(In Sets of 14s.)



DR. C. A. DAVIS' PATENT SHOULDER PIN CROWN



Illustration of Mahogany Case Containing 100 Assorted Styles. Price \$35.00

DR. CHAS. A. DAVIS' PATENT SHOULDER PIN CROWN

(Catalogue No. 510)

In use on single roots this crown has many advantages. Every dentist knows of the difficulties incident to making a perfect fit of a porcelain crown to a natural root, "when the pin is baked into the crown." No matter how careful he may be in grinding up the crown for the case in hand, the pin is always in the way to prevent that accuracy in the preparation of the crown necessary for the best results. With the Davis Crown the pin is an afterthought. The crown can be handled in every convenient manner. You can grind it in any direction, and a perfect fit can be made in half the time as with one of those furnished with the pin fastened in. Then, after the crown is ground to fit the root, the pin can be set and cemented in any position required.

By avoiding the necessity of baking the pins with the crowns in the process of their manufacture, we are able to use a metal pin many times "stronger and stiffer than the platinum pin." This overcomes the stretching and bending of the pin after the crown is "set," and we can therefore use a smaller pin, and avoid cutting away the dentine, thus obtaining more durable adjustment.

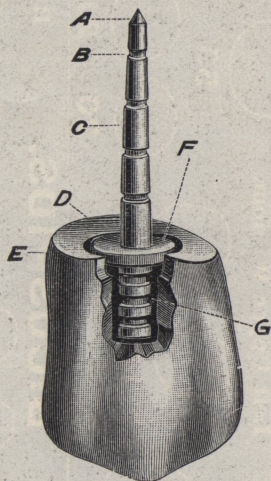
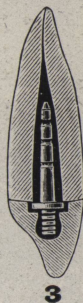
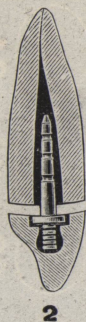
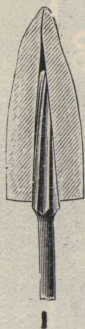
In preparing a root for a Davis Crown an ordinary reamer is used, as Fig. 1 illustrates. After the root and crown are ground to fit, the pin is cemented into both, as is shown in Figs. 2 and 3. Any good cement may be used for this purpose, and will retain the crown securely. The concave shoulder of the pin gives great strength to both root and crown, as well as assisting in joining both securely together. The great strength and rigidity of these pins will allow of their being filed and cut to suit special cases, without impairing their strength for all practical purposes. If a flat pin is wanted, the pin may be filed to that shape, and it will still be adequately strong. Fig. 5 shows how the pin can be split and adapted for bicuspid. When it is deemed necessary to band the crown onto the root, it can be practically done, as Figs. 6 and 7 illustrate.

The "quality" and "texture" of the Davis Crown is very similar to that of English teeth, as the crown can be ground with a fine emery wheel, and, by using a little putty powder on a felt wheel, "can be polished" equal to its original appearance.

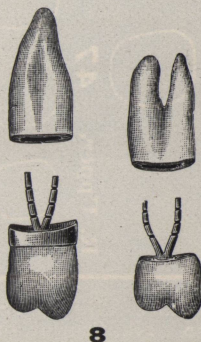
The "character" of the Davis Crowns is remarkable. In cutting of the moulds for their production nothing has been spared to make them faithful reproductions of natural teeth.

The Davis Crowns are manufactured in a great variety of forms and sizes, in centrals, laterals, canines and bicuspid. If desired, can be furnished with the pins already mounted. A very good assortment can be had in the mahogany case illustrated, which contains one hundred of various kinds, sizes and shades.

DR. CHAS. A. DAVIS' PATENT SHOULDER PIN CROWN



In the enlarged illustration A shows the point of the Davis pin, which is tapered so as to enter the canal readily, and B, one of the corrugations as they appear in the pin; D illustrates the elevated rim of the crown, the top of which is concave; F, the shoulder of the pin, which is in the shape of a concave flange and permits of a secure cement fastening to the root; and G, the portion of pin which is inserted into the crown, showing corrugations, etc.



SEAMLESS GOLD CROWNS

Order by number

SEAMLESS GOLD CROWNS

DIAGRAM OF SIZES

MOLARS.

R. Upper. 47 48 55 51 52 57 R. Lower.

Right Upper Wisdom.

6 7

Left Upper Wisdom.

L. Upper. 49 50 56 53 54 58 L. Lower.

BICUSPIDS.

RIGHT UPPER.

43 25 26 27 28 29 45

LEFT UPPER.

44 34 35 36 37 38 46

RIGHT LOWER.

30 31 32 33 59

LEFT LOWER.

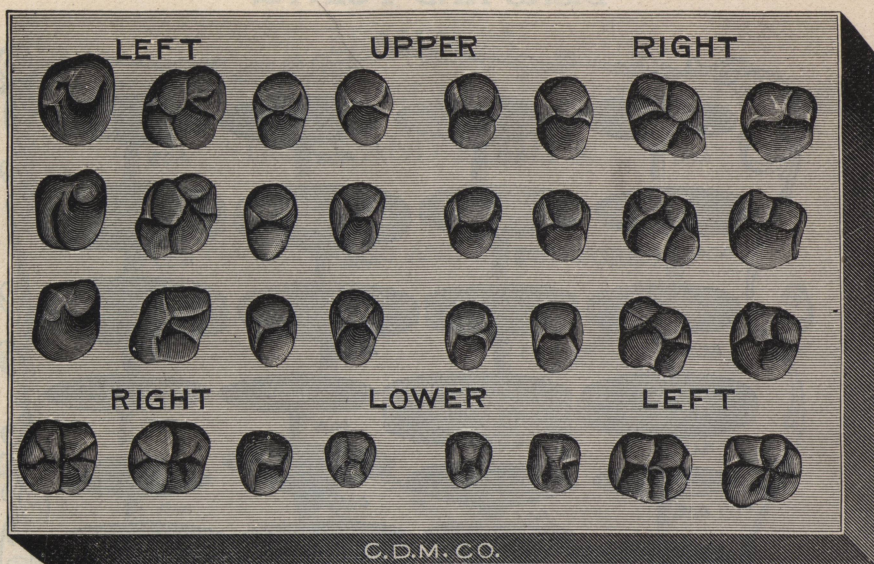
39 40 41 42 60

NOTE:—To find the size desired, take a piece of fine binding wire and place it around the neck of the affected tooth, and by twisting firmly connect the two ends. Then carefully remove the wire and place it upon the diagram under the head of the tooth required, and select the one nearest approaching it in size, and order accordingly, stating number.

PRICES: Bicuspid Seamless Gold Crown, each \$2.00. Molar Seamless Gold Crown, each \$2.50. 24k. Crowns, or Crowns made of NON OXIDIZABLE GOLD, one dollar extra. No charge for fitting the Crowns to plaster casts.

Improved Crown Die-Plate

No. 626.



We invite especial attention to our Improved Die-Plate, which represents the highest grade of excellence in appliances of this character. These dies have been carefully engraved from typical natural teeth of each class, and are all clean-cut and finished in a workmanlike manner. The die-plate is polished all over, and bears our initials. It costs no more than the inferior kind. Price, \$3.00.

Seamless Gold Crowns.

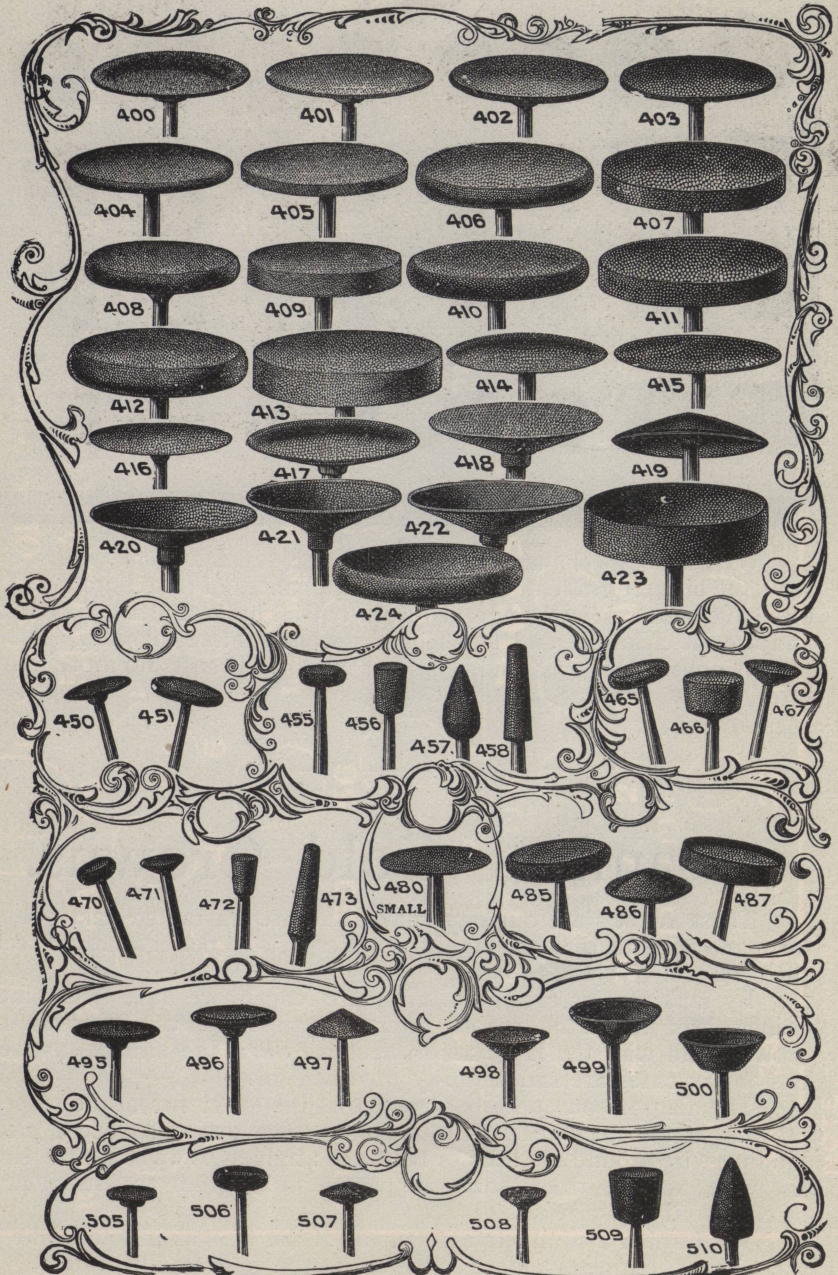
These crowns are our own make, and are warranted 22k. gold. In form and contour they are faithful counterparts of perfect natural teeth of their respective classes.

By making our crowns of adequate length, we have overcome the principal objection heretofore offered against the use of ready-made crowns, and with the large assortment we offer, the unusual as well as customary cases are satisfactorily provided for.

The diagram on opposite page shows the exact size of the respective crowns, at the neck. To ascertain the crown desired, place a piece of binding wire around the neck of the tooth; tighten by twisting the ends of the wire; remove from tooth, compare with diagram and select nearest size. Specify by number.

We furnish a complete assortment of the crowns in handsome case, there being 36 molars and 24 bicuspsids, as the diagram illustrates.

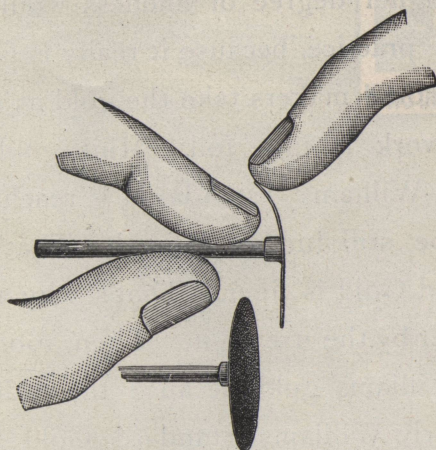
LEAMING'S "VULCAN" CARBORUNDUM AND CORUNDUM WHEELS, DISKS AND POINTS.



No. 64.

LEAMING'S "VULCAN" CARBORUNDUM AND CORUNDUM WHEELS. DISKS AND POINTS.

FOR PLUG-FINISHING AND BRIDGE-WORKING.



No. 480.

These Wheels are made by a new process, rendering them very sharp and tough. They are practically unbreakable, and do not become gummed like ordinary corundum. The character of the binding material makes them so tough as to allow of remarkable thinness all the way through to the mandrel, thus rendering their use possible in places inaccessible with the old-fashioned wheels. Many operators use them as a substitute for the diamond, as they readily cut the enamel; and they can be used for preparing cavities in porcelain teeth.

Each wheel is trued and securely mounted on plain mandrel for the dental engine while in the mould, and is guaranteed to run absolutely true.

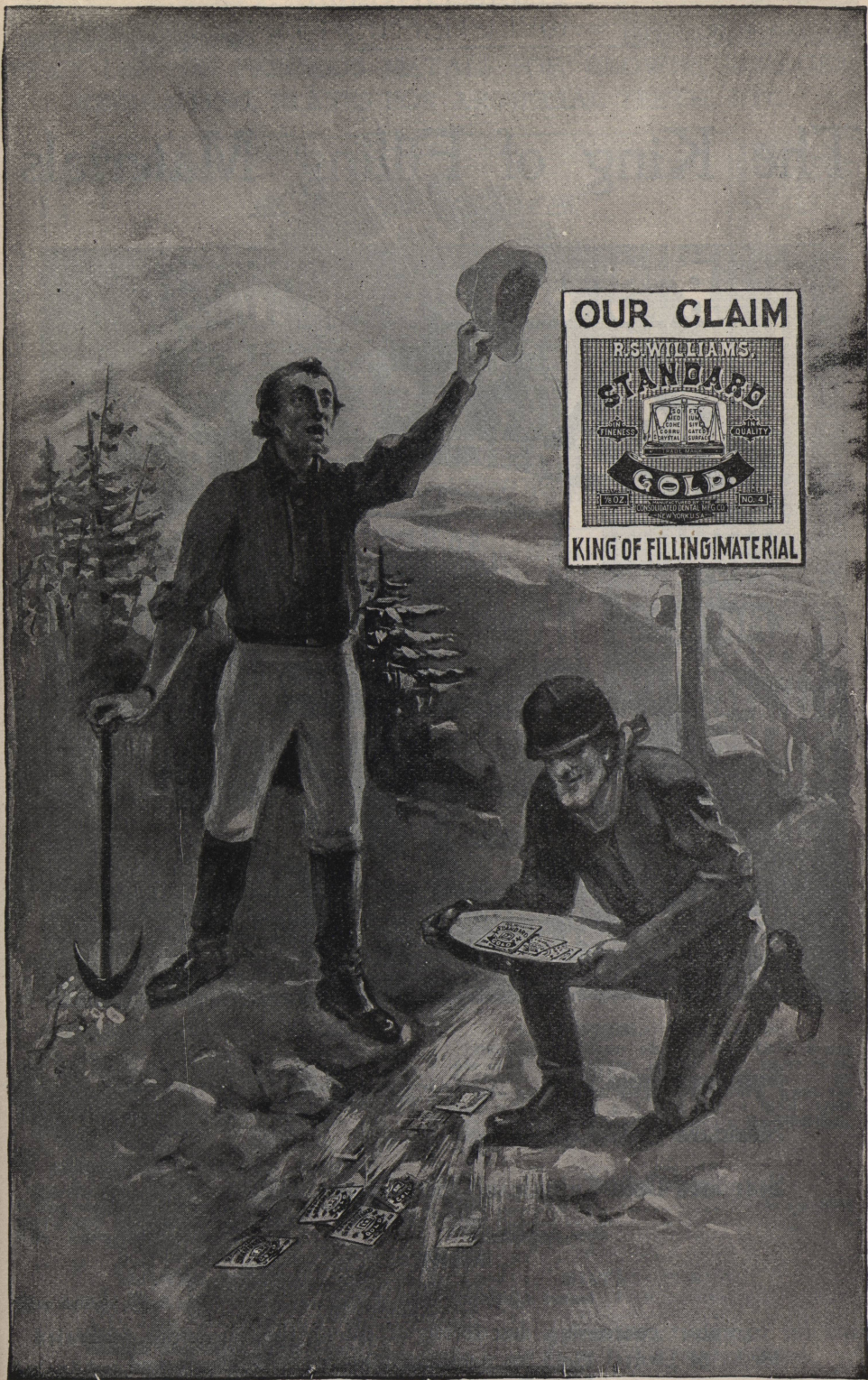
Attention is particularly called to No. 480 shown above. It is very thin and flexible, but tough and will bear a hard push edgewise. Intended for separating and polishing.

The Vulcan Disks and Thin wheels can be had "Safe-sided" if desired; and will be furnished either side smooth, as called for. Order by number.

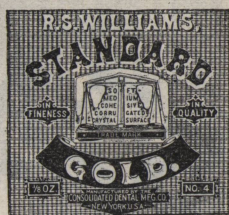
PRICE, PER DOZEN,	-	-	-	\$2.00
" EACH,	-	-	-	.20

FOR HIS REPUTATION'S SAKE

Every dentist ought to give the R. S. Williams' Standard Gold a trial, even though he may have been using some other brand of gold for years. Once he tries the Williams' gold, it is very unlikely that he would ever go back to the other kind. Perhaps it would be only the working qualities that would please him especially, for it certainly does work nicely under the instrument. Or perhaps its higher degree of fineness would warrant its exclusive use in his practice, because it really is finer. "Why is it finer?" Because some makers take the gold as it comes from the mint and simply work it into foil. Mint gold isn't absolutely pure. Before the Williams' "standard" is reached, the gold from the mint must be still further refined. That's why we claim Williams' Standard Gold is finer. That's why a dentist's reputation does not suffer by the use of it. Then, too, there is a saving in the price of Williams' gold, because the middleman's profit is curtailed. Formerly Williams' Standard Gold Foil was sold for \$4 per $\frac{1}{8}$ oz., now the price of the foil is only \$3.50. (Cylinders, costing more to make, are still \$4.) If a dentist uses very much gold in the course of a year, the saving amounts to considerable. It has been said that a larger number of dentists are to-day using Williams' Standard Gold than any three other brands in the market. Whether that be true or not, there are a host of dentists who are ready to testify to the superiority of the Williams' gold. If you are not one of the number, if you have never tried Williams' Standard Gold, now is the time for you to turn over a new leaf—a new leaf of gold foil, as it were. Investigate our claim, and you will find it well founded.



OUR CLAIM



KING OF FILLING MATERIAL

The King of Filling Materials

R.S. WILLIAMS,
STANDARD

IN FINENESS **IN QUALITY**

SO MED IUM
 COHE SIVE
 CORRU GATED
 CRYSTAL SURFACE

TRADE MARK.

GOLD.

1/8 OZ. **NO.**

NEW YORK.
CONSOLIDATED DENTAL MFG. CO.

Standard Gold Foil, \$3.50 per $\frac{1}{8}$ oz.

Standard Gold Cylinders, 4.00 "

Standard Gold Cylinders, Open Center, 3.75 "



Send for pamphlet containing description of all of the numerous celebrated forms of Dental Gold, as originated by R. S. Williams and used by Dentists the world over.

PRICE LIST OF PRECIOUS METALS FOR CROWNS, BRIDGES
REGULATING, PLATES FOR ARTIFICIAL TEETH, ETC.

STANDARD GOLD
is practically melted money, and is turned over
to the consumer at an exceedingly close mar-
gin of profit to the makers.

ONE DWT.
18 Kt.

R. S. WILLIAMS'
STANDARD GOLD SOLDER
MANUFACTURED BY
CONSOLIDATED DENTAL MFG. CO.

115 WEST 42ND ST. NEW YORK, U.S.A.

ALL PRICES ARE NET CASH WITH
ORDER FOR C.O.D. PACKAGES, the express
companies include a charge for the return of
the money which we are obliged to add to the
bill. By remitting Money Order or Draft on
New York with order for other goods, the ex-
pense of these charges will be avoided.

These Gold Plates are uniformly soft and tough. The Gold Solders are put up in envelopes as illus-
trated. The manufacture of these metals is the result of years of experience according to the sugges-
tions of many of the most skilful dentists, and it is believed that these metals are not excelled by any
in the world. Dentists who use them can rely on getting the best that can be obtained.
Always specify sizes of plates and wires by the Standard Plate and Wire Gauge.

STANDARD GOLD SOLDER.

		Price per dwt.
No. 22.	For use on 22 K. plate.....	\$1.10
No. 20.	For use on 20 K. plate.....	1.00
No. 18.	For use on 18 K. plate.....	.90
No. 16.	For use in cases where sufficient heat.....	.85
No. 14.	cannot be used to flow the higher.....	.75
No. 12.	qualities.....	.70

On GOLD SOLDERS in ounce lots, a reduction of 50 cents per ounce is made for "spot" cash.

STANDARD GOLD PLATE.

	Price per dwt.		Price per dwt.
24 K. Pure gold	\$1.20	18 K. Maade from pure gold.....	\$.95
22 K. Made from pure gold.....	1.15	Clasp plate. Gray color, tough and springy.	1.05
20 K. Made from pure gold.....	1.05		

STANDARD GOLD WIRE.

	Price per dwt.		Price per dwt.
20 K. Round or half round.....	\$1.15	Clasp wire. Round or half round.....	\$1.15
18 K. Round or half round.....	1.05	Ligature wire	1.40

NON-OXIDIZABLE CROWN GOLD.

Is a new alloy which will not tarnish in anneal-
ing, and is richer in color than pure gold. It is
nearly 24 karats in fineness, but contains a little
alloy, which makes it just enough stiffer than
pure gold to retain its shape in working.

Price per dwt., \$1.20.

ANDERSON'S CROWN METAL.

Has the gray color of clasp plate, which makes
it less conspicuous than ordinary crown gold; is
strong and stiff enough so it can be used very
thin. Price, Per dwt., \$1.05.

SILVER SOLDER.

Easy flowing. Good color. Price, per dwt., \$.09

GRANULATED SILVER.

999-1000 fine. Price per dwt.....\$.08

GOLD-FACED PLATINUM.

Gold-faced Platinum, which is Pure Gold on one
side and Pure Platinum on the other, equal parts,
is useful for Crown and Bands, because it can
be soldered without danger of melting, gives the
exact color of fine gold, and can be filled inside
with amalgam, which will not act on the Platinum.

Price per dwt., \$1.15.

PLATINUM.

Plate	Prices fluctuate
Wire	"
Iridio-platinum wire	"

SILVER PLATE.

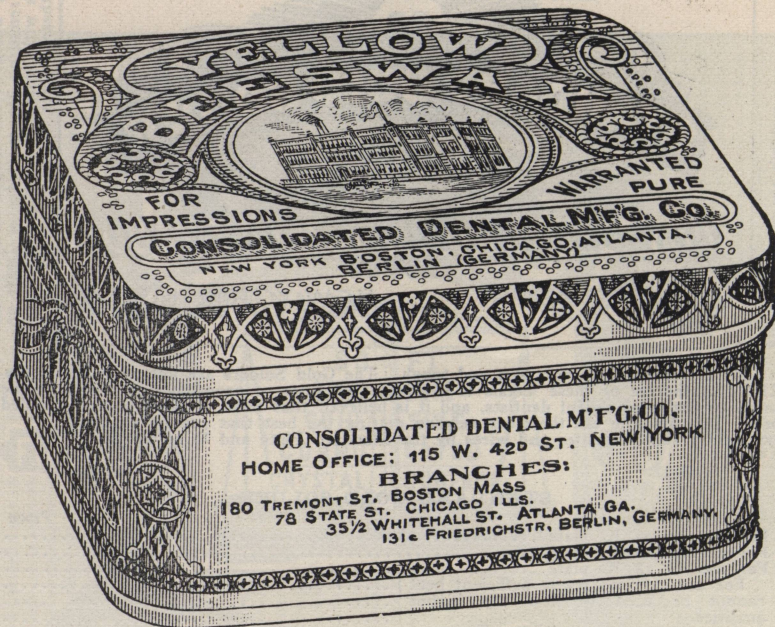
Any gauge desired. Price, per dwt.....\$.08

ALUMINUM PLATE.

No. 22 and No. 24, B. & S. Standard Gauge.
Price, per oz.....\$.20

DENTAL WAX PREPARATIONS.

YELLOW BEESWAX FOR IMPRESSIONS.



Put up in $\frac{1}{2}$ -lb enamelled tin boxes. Price per lb, 76 cents; per box, 38 cents.

YELLOW PARAFFIN AND WAX.

FOR BASE PLATES, BITES AND IMPRESSIONS.

Contains just the right proportions of paraffin and pure beeswax; is extremely tough and liked by all who use it. Made in sheets $5\frac{1}{8}$ in. by $2\frac{3}{4}$ in. Put up in $\frac{1}{2}$ -lb boxes, \$1.00 per lb; 50 cents a box.

EXTRA TOUGH PINK PARAFFIN AND WAX.

FOR TRIAL PLATES.

Many brands of Pink Wax are rendered brittle by the incorporation of coloring material. This is not true of our wax. It is, in fact, as tough as our Yellow Wax, notwithstanding its rich pink shade. Put up, same size sheets and boxes as Yellow Wax. Price per lb, \$1.00; 50 cents a box.

Cut to pattern, per box, 45 cents

DENTAL WAX PREPARATIONS

GUTTAPERCHA AND WAX

FOR BASE PLATES, BITES AND IMPRESSIONS

It would be very easy to cheapen the cost of our Guttapercha Wax by reducing the proportion of guttapercha it contains. But in our wax preparations, as in all of our other products, it is our ambition to give a little bit "more quality" than any other manufacturer. That's one of the reasons why we put so much guttapercha into this wax preparation. It is put up in $\frac{1}{2}$ -lb. boxes. Price, \$1.00 per lb.; 50 cents a box.

STICKY WAX

For putting impressions together, mending plaster casts, sticking teeth to the plate, especially in metal work.



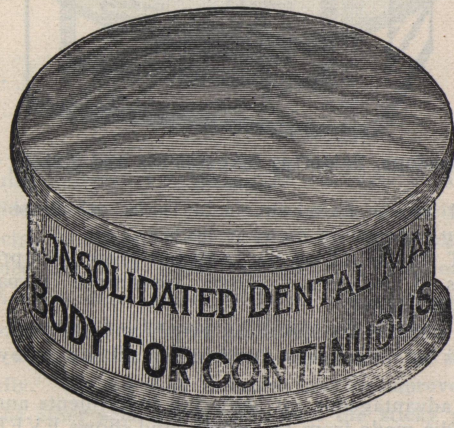
Mending rubber dam, sticking it to the tooth or gum, for attaching the porcelain to the gold in crown and bridge work, etc., etc.

Prepared by **CONSOLIDATED DENTAL MFG. CO.**

New York Boston Brooklyn Chicago Philadelphia Atlanta New Orleans Baltimore Providence

This wax is in the form of round sticks of convenient size and form for the purpose intended. Price per box, 35 cents.

CONTINUOUS GUM BODY AND ENAMEL



For beautiful shade and superior texture this material is recommended by the most prominent practitioners. Put up in neat hard wood boxes. Price, \$1.25.

MANUFACTURED BY THE

CONSOLIDATED DENTAL MFG. CO.

115 WEST 42d STREET, NEW YORK

BRANCHES:

Chicago, Ill.
Boston, Mass.

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Atlanta, Ga.

Brooklyn, N. Y.
New Orleans, La.

Baltimore, Md.
Cleveland, O.

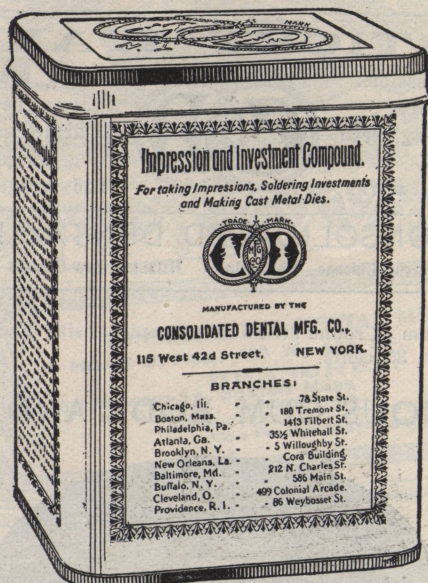
Providence, R. I.
Buffalo, N. Y.

CONSOLIDATED DENTAL MFG. CO.'S

Impression^{and} Investment

COMPOUND

Number 563 A



For taking Impressions, Soldering Investments and Making Cast Metal Dies.

This compound will be found invaluable as a substitute for plaster for impressions, etc., being superior in many respects.

It DOES NOT ADHERE to the teeth but gives an impression of the mouth, which, for evenness of surface and glossy appearance, surpasses anything that can be obtained with plaster.

Its smoothness permits its spreading evenly and freely into the spaces between the teeth or fissures in the crowns, overcoming all the annoyance incident to the use of plaster.

It is especially advantageous for soldering investments and making cast metal dies. The finished die made from this compound shows EVERY LINE, TOOTH AND UNDERCUT, SHARP, DISTINCT AND SMOOTH.

Put up in neat tin cans.

Price per can, about one quart or two pounds, 25 cents.

MANUFACTURED BY THE

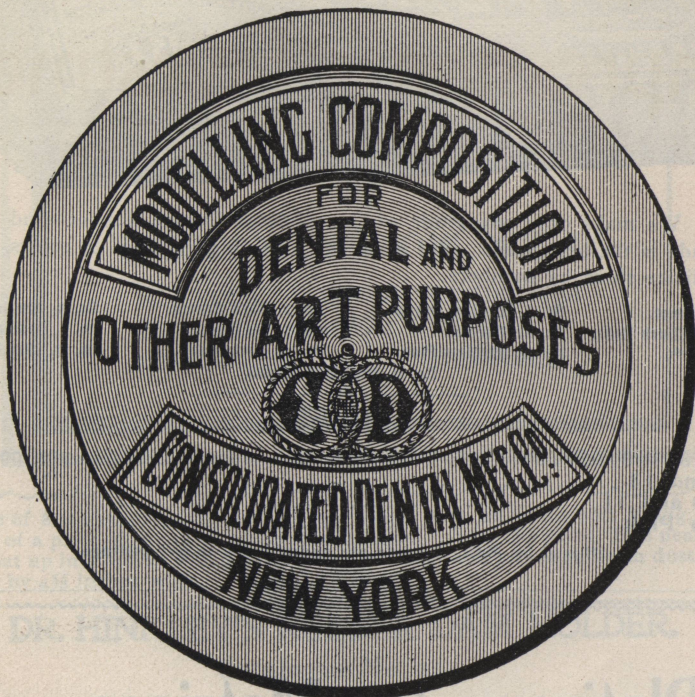
CONSOLIDATED DENTAL MFG. CO.,

115 WEST 42d STREET, NEW YORK.

BRANCHES:

Chicago, Ill.	Philadelphia, Pa.	Brooklyn, N. Y.	Baltimore, Md.	Providence, R. I.
Boston, Mass.	Atlanta, Ga.	New Orleans, La.	Cleveland, O.	Buffalo, N. Y.

WITHOUT A PEER.



Catalogue No. 560.

It is a fact, becoming universally known, that whenever an article bears the name or trade-mark of Consolidated Dental Mfg. Co., its dental integrity is thereby established. It is our cardinal principle to advertise our business by the quality of our wares. It is our ambition to produce, not in a single line only, but in all of our products, a quality which will distinguish them from preparations of unscrupulous manufacturers. That we have realized our ambition in the case of Dental Modeling Composition, is a matter of history. We have succeeded in producing a compound that is adapted to use in dentistry most satisfactorily. We are even informed that its improved quality renders it even more serviceable for the other arts. It is free from the sticky properties which characterize many compounds of similar name, and does not shrink or expand after the impression has been taken.

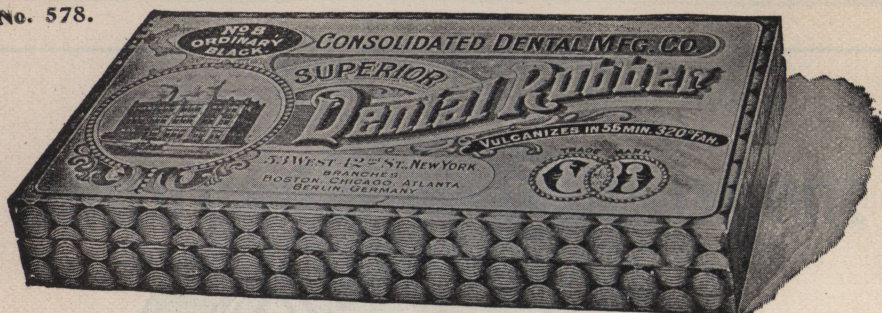
The No. 2 is most universally used, being of medium flexibility, neither yielding too easily to pressure nor too firm in resisting.

The No. 1, or very soft grade, is used for restoring composition that may have become hard by frequent use; the restoration being accomplished by heating in hot water.

In very warm weather the No. 3, or hard grade, can be used advantageously.

Our Modeling Composition is put up in half-pound enameled tin boxes, and to avoid possible mistake, each of the cakes bears our name and trade-mark. Price, per pound. 75 cents; by mail, 8 cents per half-pound box extra for postage.

No. 578.



We make only one grade of Consolidated Dental Rubber—and that grade is the best grade. We make the following varieties of colors, and indicate them by numbers:

No. 1, Light Orange.

No. 2, Medium Orange.

No. 3, Dark Orange.

No. 4, Mottled (Light Red).

No. 5, Mottled (Dark Red).

No. 6, Maroon.

No. 7, Jet Black.

No. 8, Ordinary Black.

No. 9, Light Pink.

No. 10, Medium Pink.

No. 11, Dark Pink.

No. 12, Weighted (Heavy).

No. 13, Weighted (Light).

PRICES.

Nos. 1, 2, 3, 4, 5, 6, 7, 8.....	per pound, \$2 25
Nos. 12 and 13.....	" " 3 00
Nos. 9, 10 and 11.....	" " 4 50
Perfection Pink.....	" " 6 00

If sent by Mail, 16 cents per pound extra to pay postage.

Platinum for Matrices

.0002 of an Inch in Thickness.

There has been a growing demand for platinum for matrices one-fifth of one one-thousandth of an inch in thickness for use in porcelain inlay work. To meet this demand, we have invented a novel process by which we can produce platinum of this thickness without it being porous, the great disadvantage of platinum of this thickness heretofore.

PRICE PER SQUARE INCH, 50 CENTS.

FOR SALE BY

CONSOLIDATED DENTAL MFG. CO.

CHAMOIS SKIN PAD

FOR PLACING GOLD CYLINDERS UPON
WHEN OPERATING



CONSOLIDATED DENTAL MFG. CO.

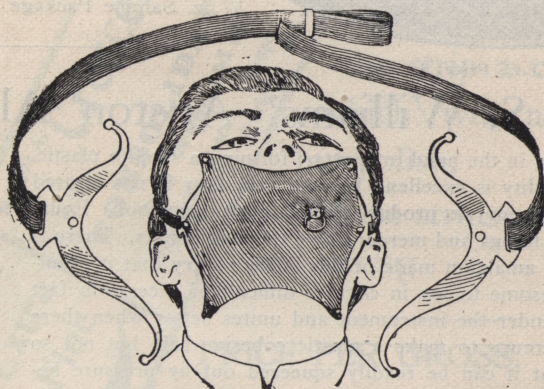
NEW YORK	BOSTON	PHILADELPHIA
BROOKLYN	CHICAGO	ATLANTA
NEW ORLEANS		PROVIDENCE

Made of fine chamois skin, specially prepared, with an extra soft lining, giving the advantages of a piece of spunk of which it is designed to take the place. It is neat in appearance, and put up in a box in which it can always be kept and protected from dust. Size, 5¼ inches long by 4¾ inches wide. *Price, 25 Cents.*

DR. HINKLEY'S RUBBER DAM HOLDER.

Catalogue No. 241.

Patented February 2, 1897.



Holds the Dam firmly independently of any change in the position of the head.

Extends the cheeks and admits the light to obscure cavities in posterior teeth.

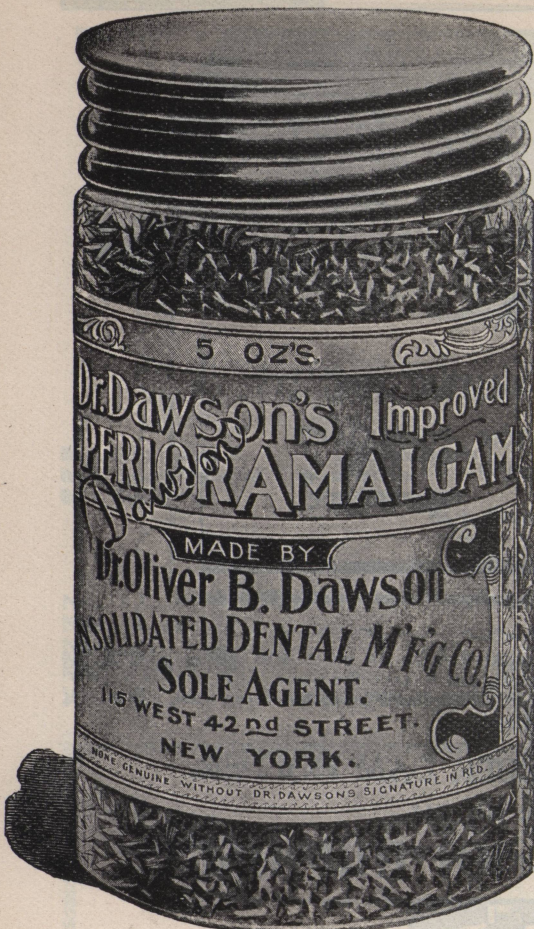
Obviates the necessity of weights, and gives the operator free use of both hands at all times. Is more efficient than inferior makes and requires less dam in its use.

Dr. Hinkley designed this Rubber Dam Holder to assist the operator in exposing to light obscure and inaccessible cavities in posterior teeth. The illustration shows how efficient it is for this purpose.

In using the Holder, the upper ball of the face plate is first to be attached; then the lower; lastly, by attaching the center point, the surplus rubber will be taken up.

Avoid excess of pressure on the clamp by adjusting the head band loosely.

Price, postpaid, \$1.00.



Dr. DAWSON'S Improved Superior Amalgam.

*A SUPERIOR LOW-PRICED
METALLIC FILLING.*

As long ago as 1876, Dr. Dawson's Superior Amalgam was a dental favorite. Its popularity was then largely due to the fact that it was made by Dr. Dawson himself; and that's one of the reasons for its popularity now.

PRICES.

5 oz. Handsome Screw-capped Glass Jar	\$10.00
1 oz. Screw-capped Glass Jar, or in Envelope	2.50
1/3 oz. Sample Package	1.00

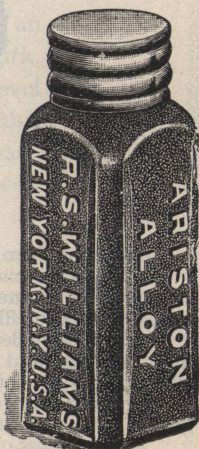
5 oz Jar. Price, \$10.00.

R. S. Williams' Ariston Alloy

Mixes well either in the hand or mortar, forming a smooth plastic. The working quality is excellent, because this alloy is not injured by using enough mercury to produce *complete amalgamation*. Equal parts by weight of filings and mercury give the best results. There is no need to use the amalgam made of this Alloy so dry that it crumbles and is troublesome to use in cavities difficult of access; in fact it spreads better under the instrument and unites better when there is just enough mercury to make a plastic cohesive ball, but not so much mercury that it can be readily squeezed out by pressure between the thumb and fingers. When used too dry, the amalgam is liable to bridge over like cohesive gold, leaving pit holes which cause leakage.

Ariston Alloy is made in the form of filings only; it is put up in ounce and half-ounce screw-capped glass vials, and may be ordered from the Consolidated Dental Mfg. Co. or any of their branches, agencies or correspondents throughout the world.

The price of Ariston Alloy is \$3.00 per Troy ounce; two ounces, \$5.50; four ounces, \$10.00.



Crescent Polishing Strip

CATALOGUE No. 294A

This strip is not a finishing strip, but is meant to put a lustre on the filling after a finishing strip has been used to smoothen same.



No. 294 A. Crescent Polishing Strips
MANUFACTURED BY
DENTAL MFG. CO.
NEW YORK.
Buffalo, Baltimore, New Orleans, Berlin.
Philadelphia, Brooklyn, Atlanta.
CHICAGO, ILL.
TRADE MARK
REGISTERED



For that purpose we have incorporated with the strip a composition which will not scratch, but polish.

These strips are very thin and strong.

PRICE PER GROSS, 50 CENTS

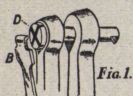
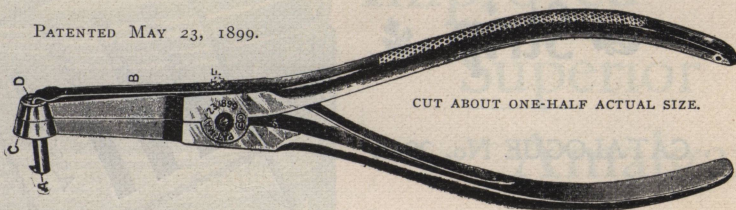
Manufactured solely
by the

Consolidated Dental Mfg. Co.

Crown Slitting Forceps.

PATENTED MAY 23, 1899.

Catalogue
653 A
Number.



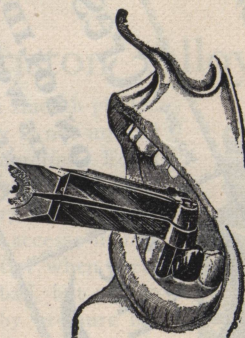
These forceps are entirely unique and superior to anything on the market for removing gold crowns. The small knife blade point is inserted under the cervical edge and the plier rim is rested upon the occlusal end of the crown. Then by simply compressing the handles of the forceps the crown is easily slit lengthwise. In this way a crown or bridge anchorage can be readily and neatly removed and the slit crown replaced if wished, by soldering the slit edges of the crown after bringing them together. The great advantage of this slitter is the fact that by turning the knife, the front side or rear of a crown may be slit with equal ease, and furthermore the point of the knife can not slip off of the crown. All parts of the mouth can be reached with equal facility and without any danger of cutting the cheeks, as the rim prevents the knife from touching the cheeks, should it slip. Extra knives can be procured at a small cost should they become dull.

The knife "A" is to be inserted under the cervical edge of the crown and the rim "C" rested upon the occlusal end of the crown. By lifting the spring "B" the knife may be turned in any position so as to cut any part of the crown or reach any tooth with equal facility. The slit "D" in the top of the knife piece prevents it from turning. The knife piece can be taken out or replaced by lifting the spring "B" and turning it on Fig. "F."

This forcep is made so that it can be taken apart easily and each piece thoroughly cleansed and rendered aseptic.

Figs. 1, 2, 3, 4 and 5 show the different positions of the knife.

PRICE COMPLETE, \$3.50
EXTRA KNIVES, .50

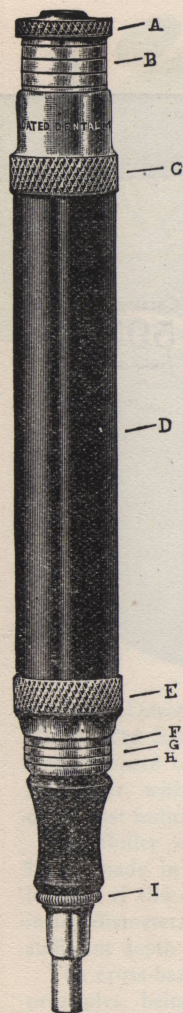


Consolidated  Dental Mfg. Co.

115 WEST 42d STREET, NEW YORK.

The "Perfect" Automatic Mallet

HAVING A VARIABLE STROKE
WITH A VISIBLE ADJUSTMENT.



The movement of the socket-piece of this instrument can be varied, and the fall of its hammer can thereby be adjusted to either one-twelfth, one-eighth or one-sixth of an inch, at the pleasure of the operator. The parts are rigidly held, when adjusted, by the knurled ferrule E. The adjustment of the instrument is shown by the scores F, G, H. If F is barely in sight at the edge of the ferrule E, the instrument will have its longest stroke, and the hammer will be lifted one-sixth of an inch. To lessen the lift of the hammer, loosen the ferrule E from its bearing against the tubular portion, D, grasp the smaller section at I, and screw it into the section D until one of the scores G, H, is brought to the edge of F. Then tighten E against D.

By screwing the smaller section of the case, I, in or out a little, the amount of "slack" or distance which the spring catch passes by the hammer catch to insure its engagement, can be adjusted. In this instrument, the "slack" can be made more or less, to suit the ideas of its user.

The force of the spring which actuates the hammer is regulated by the screw cap A, which is screwed into the section D to increase the force of the blows. It is held securely, when adjusted, by the knurled ferrule C; the force of the blow being estimated by the number of the scores B which are exposed. The more of them there are in sight, the lighter will be the blow.

TO ASSEMBLE THE INSTRUMENT.

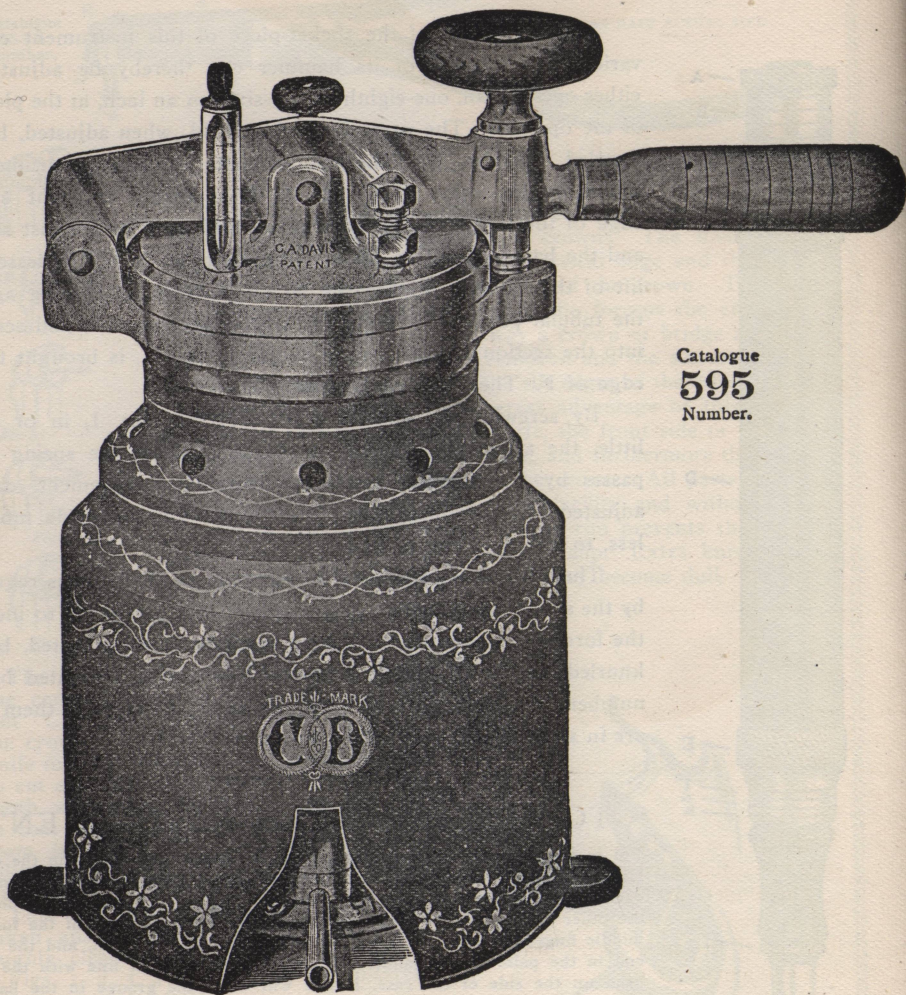
Put in the hammer, large end first, then its spring, and screw on the cap A. Hold the case, or large section of the instrument containing the hammer, in one hand, with the side-screw up. Take the smaller section, or nose-piece, in the other hand, with the threaded part resting upon the tips of the fore and middle fingers, the thumb upon the butt of the spring catch, and the socket end in the palm of the hand. Keep the spring catch in line with the screw head on the side of the case, and it will enter the groove in the hammer. Rotate the nose-piece slightly, and push it in as far as it will go, and screw the two sections of the case together while holding it there.

In oiling the instrument, use none but the finest oil; our Champion Dental Engine Oil is recommended. Thick, heavy oils, or those which become gummy, will interfere with the proper working of the instrument. Only a small quantity of oil is required.

The workmanship and finish of "Perfect" Mallet is what its name implies. The outer casing is of hard rubber, and the metal parts of the casing are nickel plated.

DR. CHAS. A. DAVIS' Improved Cross-Bar Vulcanizer.

Patented, March 20, 1894.



Catalogue
595
Number.

PRICES.

3-Case Vulcanizer, for Gas or Kerosene.....	\$20.00
2-Case Vulcanizer, for Gas.....	18.00
3-Case Vulcanizer, with Gas Regulator and Timing Attachment.....	28.00
2-Case Vulcanizer, with Gas Regulator and Timing attachment.....	26.00
3-Case Vulcanizer, with Steam Gauge.....	24.00
2-Case Vulcanizer, with Steam Gauge.....	22.00

Dr. Chas. A. Davis' Improved Cross-Bar Vulcanizer.

(CONTINUED.)



The strongest recommendation that we can offer for this Vulcanizer is the large number that are now in successful use by dentists all over the world. Since we first placed the Vulcanizer on the market in 1897, hundreds on hundreds have been sold, and are giving universal satisfaction.

This Vulcanizer is constructed throughout on scientific and best mechanical principles. It is extremely simple, compact, durable, well-made, and handsomely finished.

No wrench required. The Vulcanizer is opened by simply unscrewing the hand-wheel and lifting the handle attached to cross-bar. The two last threads effectively lift the lid from the boiler, thereby avoiding the necessity of prying them apart, which is the disadvantage of other cross-bar vulcanizers. The Vulcanizer is closed by turning down this screw, which makes a perfectly steam-tight joint.

Each Vulcanizer is regularly furnished with the Davis Improved Thermometer, a substantial Blow-off Valve and a Safety Valve. The Safety Valve contains a thin metal disk which will give way under excessive pressure of steam and thus prevent an explosion. When so ordered, our Gas Regulator, with Timing Attachment, or our special Steam Gauge, will be added, at extra cost indicated in list of prices.

The Boiler or Pot is seamless and extra heavy. The entire lower part below the lid is made in one solid piece, thus avoiding any opportunity for a weak joint or leakage if the collar were brazed to the pot, as in other cross-bar vulcanizers. The inside diameter of the boiler is $4\frac{1}{4}$ inches, sufficient to take the largest flasks, and is of sufficient depth to admit the Donham Spring.

The cross-bar is made of extremely hard gun metal and is constructed on scientific principles, being heavily reinforced at the center, where the greatest pressure is exerted. The handle of the cross-bar is hard wood, of suitable size. It is securely fastened to the cross-bar by means of a bolt and blind nut, which is countersunk within the end of the handle, making it impossible to burn the hand grasping the same. The hand-wheel screw and tapered bolts which hold the bar to the boiler and lid to the bar are of the best cast steel. The wooden hand-wheel is securely fastened to the screw and can be operated without further protection from the heat.

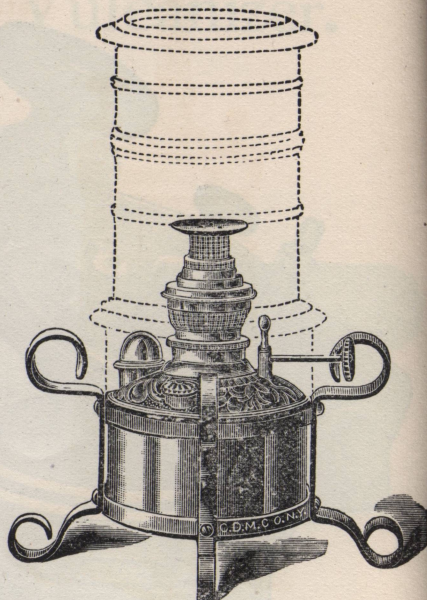
The Packing used in the Vulcanizer is of moulded carbon or graphite, and will last for years without being renewed.

Dr. Chas. A. Davis' Improved Cross-Bar Vulcanizer.

THE KEROSENE HEATING ARRANGEMENT.

We would invite particular attention to the unique kerosene heating arrangement as furnished with this Vulcanizer. It consists of an improved kerosene lamp, constructed on the standard center-draught principle. It gives intense heat and the flame can be regulated to a nicety. The oil reservoir has an indicator showing when it is full, and empty, which is an advantage when refilling. The iron stand is light, strong and of neat form. The jacket is made of sheet iron, and has an isinglass door convenient to the burner. This kerosene arrangement is a great improvement over anything ever before furnished for vulcanizers where gas is not used.

Price, \$4.00.



THE GAS REGULATOR.



We illustrate herewith the Davis Improved Cross-bar Vulcanizer fitted with our Gas Regulator and Timing Attachment. The Gas Regulator checks the flow of gas so as to hold the temperature of the Vulcanizer at the degree desired. The Timing Attachment shuts off the flow of gas at the right time. If a higher or lower temperature is desired

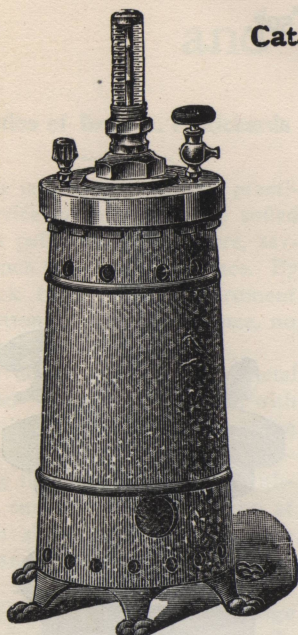
the Regulator can be adjusted accordingly, it being adjustable to any temperature between 270° and 330°, this range comprising the temperatures applicable to dental vulcanizing. The Gas Regulator has an extra large diaphragm, rendering it extremely sensitive. The gas valve of the Timing Attachment is operated by the threaded minute arbor and is capable of very delicate regulation.

Our Gas Regulator and Timing Attachment are applicable to any vulcanizer and are furnished at the price of \$8.00.

Regulator	\$5.00
Timing Attachment	3.50

THE WHITNEY VULCANIZER.

Catalogue No. 598.



The Whitney Vulcanizer consists of a copper pot 4 inches in diameter, on which a brass head is screwed, a steam tight joint being secured by means of a rubber packing in the head, which bears upon the edge of the pot. The pressure is thus brought evenly upon the parts, the screw thread supporting the pot and preventing it from being drawn out of true. This system of screw fastening has been found to work satisfactorily for many years, and is yet recommended by some practitioners in place of the lever-locking device. The safety disk will blow out at 340 degrees and allow the steam to escape, if, by any oversight, the heat should be increased beyond the 320 degrees limit.

The vulcanizer is also supplied with a neat blow-off valve, whereby the steam may be blown off at any time to reduce the heat after vulcanization, or to blow off air after the steam is up, as the presence of air in the vulcanizer while vulcanizing will cause the mercury in the thermometer to vary. The mercury bath thermometer is applied to the vulcanizer, the bulb of the thermometer being immersed in the mercury and thereby protecting it from the destructive action of the steam.

The Whitney Vulcanizer is supplied with a heating apparatus for the use of either gas, alcohol or kerosene. Unless specified, we always send our 4-inch oil stove with this vulcanizer. This is a very efficient heater, and one that will not get out of order easily. The price is the same, whether for gas, alcohol or kerosene.

For locking or covering Whitney Vulcanizer, Wrench 601 A and the Round Wrench 601 B will always be sent unless others are designated.

If it is convenient to cut a hole in bench to receive the vulcanizer, allowing wrench and bed-plate to be used, we would recommend 601C Bed-plate, and 601A Bed-plate Wrench.

- No. 598 A—Complete with Gas Heating Apparatus.
- No. 598 B—Complete with Kerosene Heating Apparatus.
- No. 598 C—Complete with Alcohol Heating Apparatus.

PRICES :

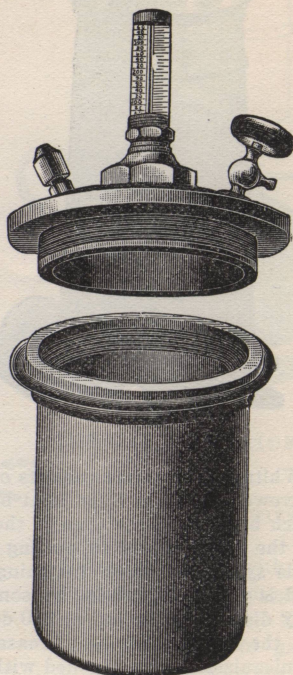
Either style, 2-flask capacity, \$12.00.
 " " 3-flask " 14.00.

THE BOSTON VULCANIZER.

Catalogue No. 597.



CLOSED.



OPEN.

This Vulcanizer is made of the best Bronze, so-called "Gun Metal," and is tested at one thousand pounds hydraulic pressure. It will hold three flasks of any kind with Donham spring, and allow plenty of room for handling.

The packing is moulded instead of being cut in strips, and will last for years without being renewed. The cover can be screwed steam tight without the use of a wrench, the same being necessary only to open after being heated. The small quantity of water used (one gill) causes vulcanization by steam instead of water, thus producing better results.

The bed plate jacket, which is screwed to the bench, allows an easy and ready method of handling.

Catalogue No. 597 A—Vulcanizer complete for gas.
 " No. 597 B—Vulcanizer complete for kerosene.

Price, either style, \$16.00.

Dr. Richards' Waste Cotton Receptacle and Tool Cleaner

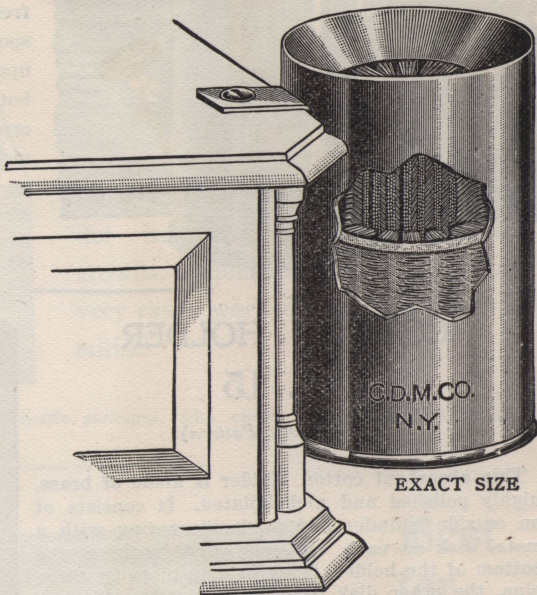
No. 25.

Invention of Dr. Wm. P. Richards

EVERYTHING GOES OUT OF SIGHT.

This is a very neat and practical device for removing the soiled cotton pellet from the pliers, saving much time and annoyance. By a quick twist of the instrument the cotton is removed at once, no matter how tightly wound.

The device consists of a metal cylinder containing a pad, with projecting wires, which catch the cotton and hold it securely, permitting the instrument to be withdrawn entirely clean. The cup at bottom slides out, also the wire pads, and can be cleaned equal to new. It is handsomely nickel-plated, and can be screwed to edge of bracket table, as shown in illustration.



EXACT SIZE

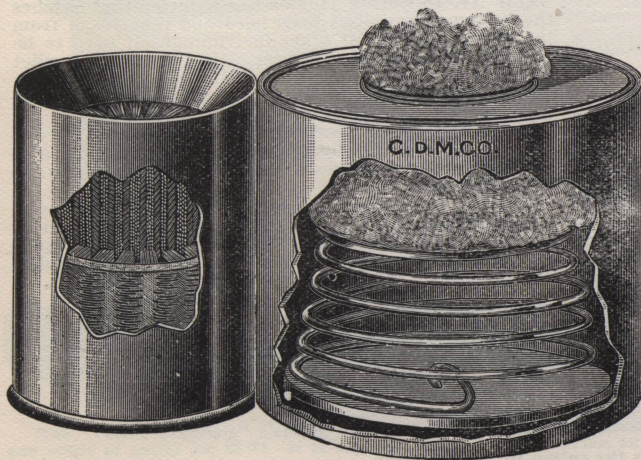
PRICE 50 CENTS.

SCREWED TO EDGE OF BRACKET TABLE.

No. 24.

Style C Cotton Holder

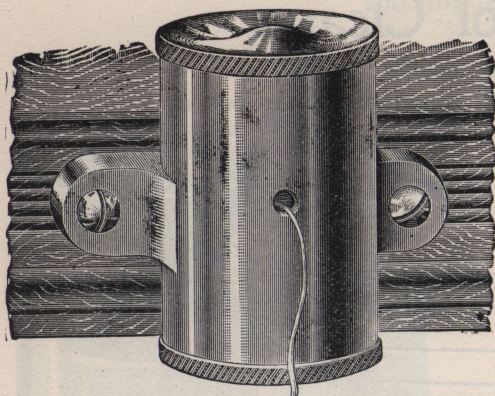
With Richards' Waste Cotton Receptacle and Tool Cleaner.



As illustration plainly shows, this device is simply a combination of Dr. Richards' invention, slightly modified with our style A, or Methot's pattern, Cotton Holder. Cut shows interior view of each of the cylinders. Every dentist can appreciate the advantages which this combination offers.

Price, Handsome!y
Nickle-plated, \$1.25.

FLOSS SILK HOLDER No. 14



Designed, to be attached to the bracket table, as a convenient method of holding dental floss, keeping it always handy and free from dirt. The top unscrews, and spool is placed inside, where it revolves upon a steel axle that is fastened to bottom of the holder. The whole is exceptionally well made and handsomely nickel-plated.

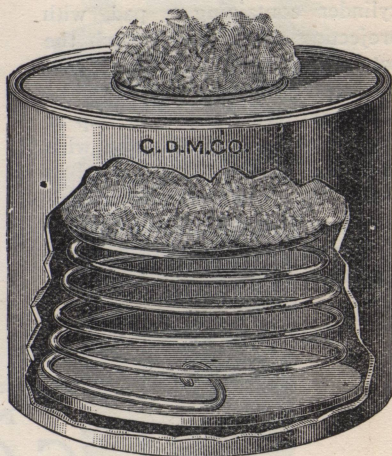
Price, 75 cents

COTTON HOLDER No. 15

(Dr. Methol's Pattern)

This absorbent cotton Holder is made of brass, highly polished and nickel-plated. It consists of an outside cylinder and an inside spring with a metal disk on each end, one disk making the bottom of the holder, being held in place by three pins, the other disk pressing the cotton through the round aperture on the top. Sufficient cotton is always exposed for use.

Price, 70 cents



COTTON HOLDER, No. 16

Our No. 16 Cotton Holder has a device that catches the cotton after it has been used and removes it from the plugging pliers or other instrument. It used to be that to relieve the foil carrier of the cotton pellet which, being saturated with adhesive medicaments, would stick securely to same, the dentist would have to remove it with his fingers.

Inside the cotton reservoir is a metal disk, forced against the contents by pressure of a stiff spring, and serving to keep sufficient quantity of cotton always ready for use.

The pad containing the steel wires can be removed and a new one inserted when necessary. Provision is made for attaching the instrument to bracket table by means of a screw through the plate which holds the wires.



Price, \$1.00

The Conical-Shaped Top allows the cotton to "feed" easily

German Fused Oxide

The Best Cement
For Setting Crowns



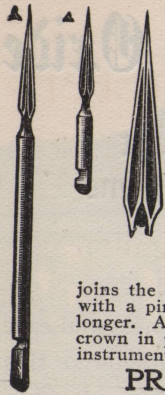
The glue-like adhesiveness and ease of manipulation that characterize this celebrated German Fused Oxide, render its superiority, for attaching crowns, unquestionable. It is smooth, very easily worked, and does not crystallize.

German Fused Oxide is furnished in two-bottle packages, with choice of either yellow or grey powder, at the price of One Dollar.



Best
for
Filling
Teeth

The "Plastic Porcelain" Cement is sold in full size packages (containing two bottles of powder and one bottle of paste) for \$2.00. It is also sold in packages at \$1.50, and a sample package can be had for \$1.00.



PULP-CANAL REAMER

Devised by Dr. J. Leon Williams

In describing this instrument Dr. Williams says: "It is a modification of the three-sided reamer, but the modification is much the most important feature of the tool. Each of the three sides is deeply grooved. The result of this grooving is two-fold. It makes an instrument which is as easily sharpened as an excavator, and which can, therefore, be kept in the finest cutting condition until worn out. The grooves also render the tool self-clearing. It never clogs, it cuts very rapidly, and there is not the slightest danger of forcing it through the side or end of the root. It leaves roots which have a curvature at the end in the best possible condition for treatment with sulphuric acid or by any other method, i. e., with a large cone-shaped opening giving an abundance of room for working and seeping. It cuts away more of the infected dentine with less destruction of the root than can be accomplished by the use of any other instrument. And, finally, it leaves the root canal exactly the shape required for the strongest and best form of pin for crown work—a pin which is largest and strongest where it joins the crown and which gradually tapers to a fine point in the end of the root. Crowns with a pin of this shape are much less liable to get loose because the pin can be made much longer. Also, one never finds an air cushion beneath a pin of this shape when cementing a crown in place. From every point of view, therefore, I regard this as much the most valuable instrument for opening pulp canals that I have ever used."

PRICE, EACH

60 CENTS

THE BRYANT NERVE CANAL DRILL.

(Patented.)

Catalogue No. 52.

The following is Dr. Bryant's statement concerning his drills:

To the Profession:—While other canal drills are formed to resemble a cone or bud shape, having the greatest resistance at the base of the drill head, causing them to bind and choke up in the canal, and requiring so much forward pressure to enter the canal as to greatly increase the liability of twisting or breaking off the blades, we offer a canal drill based strictly on a mechanical principle, viz., a cone base to base.

This drill being thus shaped meets the greatest resistance at the center of the drill head, the cutting blade gradually increasing in width and increasing in thickness from the non-cutting or safety point to the center of the drill head, then, gradually decreasing in width and decreasing in thickness, to the base of the drill head; allowing the point of greatest resistance to come on the cutting-blades at the center of the drill head where they are strongest, which enables the drill to enter the canal so evenly and rapidly that it requires about one-third of the forward pressure to enter a canal that is required of other drills.

These drills are especially designed to facilitate the operator in preparing all dead teeth and roots of teeth valuable for the retention of porcelain crowns, bridge work, etc., which becomes so laborious and unsuccessful with other drills.

Our testimonials endorse all we claim for this drill, viz., a ready follower, a rapid cutter, complete ease of penetration, positively will not clog up in the canal, throwing all canal contents directly backward and down the canal; when dull, can be sharpened by running a fine emery disk on the cutting blades with a dental engine; they are made with a requisite size shank to insure strength for all work called upon, with enough flexibility of shank to properly follow and cut tortuous canals. They comprise a set of six numbers in straight drills for use in the canals of the upper teeth, also a set of six numbers to be used in the right-angle attachment for the canals of the lower teeth.

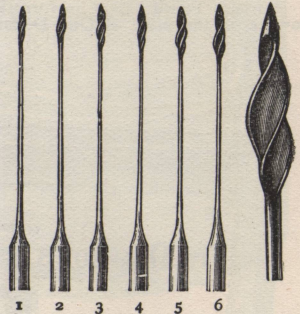
In preparing the canals of the different teeth we advise the use of several numbers, especially so in the canals of lateral, bicuspid and molar teeth. Their perfect adaptation and durability with the ease of their rapid cutting, the saving of time and labor to the operator, with assured success in all operations for which they are designed, without that constant dread of breaking or twisting off in the canal, will commend them to all conscientious and progressive operators for a trial.

Your patients will pay you a good price to save a dead tooth, or a root that is valuable for capping or crowning, even any method proposed by you to escape extraction. If you have had failures with other drills, try these and be assured of success, and success means the gratitude of your patient with a greater income to yourself.

My experience teaches that no part of dentistry will advertise your fame so largely and thoroughly as successful operations which, in saving extraction, promote the continued use of the natural teeth.

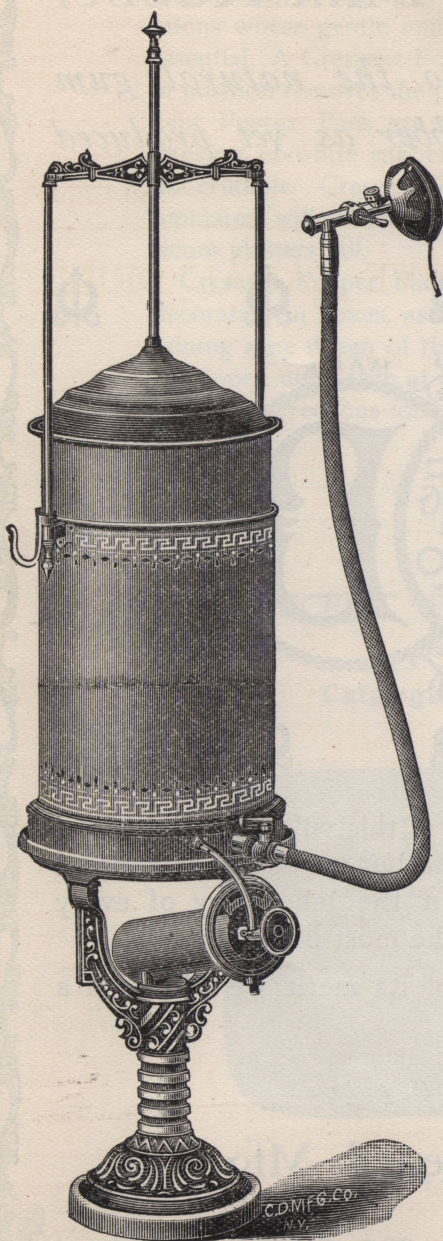
CHAS. H. BRYANT.

PRICE, EACH, 50 CENTS.



Nitrous Oxide Gasometer

Fitted for either a
100 or 500 gallon
Cylinder.



The capacity of our Gasometer is about seven gallons; it is provided with a water-seal that may be adjusted to sustain the weight of the bill either wholly or partially, thus preventing escape of gas if inhaling tube should be left open, and also obviating the necessity of balance weights.

The body of the Gasometer is made of galvanized iron, neatly japanned and ornamented; placed upon an ornamental cast-iron stand.

The cylinder holder is adjustable for either 100 or 500 gallon cylinder, thus allowing the use of either size cylinder as desired.

Prices of Gasometer and Accessories:

Gasometer and Stand, including Inhaler Support.....	\$25.00
Style A Inhaler with Flexible Rubber Face Piece.....	8.00
Style B Inhaler with Vitalized Air Attachment and Inflatable Face Piece.....	10.00
Style C Inhaler, with Inflatable Face Piece.....	8.00
Inhaler Tubing, Covered, per foot40
100 gallon cylinder of gas.....	7.00
Metal Coupling to connect tubing with Gasometer.....	.25
Cylinder wrench or "Wheel Key"25
Yoke Attachment to Connect Cylinder with Rubber Tubing	1.50

“Perfection” Pink Rubber

Approaches nearer to the natural gum color than any rubber as yet produced and is very strong



The success that the sale of this vulcanite rubber has met with assures us that it has but to be tried in order to find a permanent place in the laboratory of every dentist who is striving after the most perfect results.

In order to assure you of its merit we will send a free sample on application.

Put up in $\frac{1}{4}$ lb. package

Consolidated Dental Mfg. Co.

Crescent Pepper Pads are valuable in cases of Regulating, Wedging and Crowning, and in operations where gentle and persistent stimulation is essential. A Crescent Pepper Pad properly placed in position removes the pain and tenderness. Crescent Pepper Pads are very thin, and having a packing of white rubber, are waterproof and do not crumble. Crescent Pepper Pads, properly manipulated, will adhere to the gum where other cap-sicum plasters fail.

Crescent Pepper Pads are carefully packed in decorated tin boxes, as illustrated, each box containing nine dozen of the pads and a quantity of envelopes, upon each of which envelopes is printed complete directions for their use by the patient.

CRESCENT PEPPER PADS.

Catalogue No. 224.



Price, 50 cents.

Special Notice to the Dental Profession.



Listerine

in the

Original Package



WE beg to announce that, in addition to the regular size 14-oz. bottle in which LISTERINE is offered to the trade, a smaller package, containing **three ounces** is now placed upon the market; the consumer of LISTERINE is thereby enabled to purchase, under the seal and guarantee of the manufacturer, even the smallest quantity likely to be required.

Wholesale druggists throughout the United States are prepared to promptly supply Pharmacists with the new size LISTERINE.



ORIGINAL PACKAGE.

3-oz. Size—LISTERINE—Price 25 cents.

Lambert Pharmacal Company, St. Louis.

WANTS. FOR SALE ETC.

NOTE.—Rate for advertising in this department of ITEMS OF INTEREST is ten cents per word, including captions, "Wanted," "For Sale," etc., and address. Initials charged as words. Advertisements should reach us by the 20th of each month to insure insertion in the following month's issue, and are payable in advance.

CONSOLIDATED DENTAL MFG. Co., Publishers, 115 W. 42d St., New York, N. Y.

- 1592—FOR SALE.—Two established advertising Dental offices in one of the largest cities in the East; fully equipped and now doing paying business; other business demands attention. Address, "S. J.," care S. S. White, Union Square, New York.
- 1593—FOR SALE.—A fine practice and outfit in beautiful Los Angeles, Cal. A ten years' practice. Office furniture; two dental chairs; electric engine, etc., for \$1,000 cash or would sell a half interest to a first-class workman for \$650. Business about \$3,500 a year; not much plate work. DR. A. J. STEVENS.
- 1594—FOR SALE.—Practice in town of 30,000 inhabitants, only seven dentists. Good reasons for selling. Address "BARGAIN," care "Items of Interest," 115 W. 42d st., New York.
- 1595—FOR SALE.—\$2,000 dental practice in Southwestern Kansas for \$500 cash; owner must leave March 1st on account of other business. Address "No. 1595," care "Items of Interest," No. 115 W. 42d St., New York.
- 1596—EARLY PORCELAIN PIVOT TEETH—FOR SALE.—4 front teeth and 2 molars made in France about 1802. Valuable to collectors. For description see "Dental Cosmos," Oct., 1900, Fig. 3, page 38. What offer for the above. Address "H," care "Items of Interest," 115 W. 42d st., New York.
- 1597—INVESTIGATE this fine cash practice with fully equipped office for \$700. Northern Iowa. Address "WESTERN," care "Items of Interest," 115 W. 42d st., New York.
- 1598—WANTED.—A good all around operator. Address FRED REISS, 542 Fourth ave., Louisville, Ky.
- 1599—\$7,000.—Office and practice for sale in New York City. Price \$1,500 cash. Reason: poor health. Address "1599," care "Items of Interest," 115 W. 42d st., New York.
- 1600—SNAP.—\$850 cash; Los Angeles, California office with practice \$200 to \$300 month. Address "1600," care "Items of Interest," 115 W. 42d st., New York.
- 1601—FOR SALE.—\$2,500 practice and outfit in county seat town in one of best counties in Nebraska. No competition. Address "NEBRASKA," care Chase Combination Dental Co., Omaha, Neb.
- 1602—GOOD OFFICE FOR SALE.—Address J. W. BRETT, Mediapolis, Iowa.
- 1603—ELEGANT parlor suite for Doctor. Best of reference required. Apply 352 Madison avenue, New York.
- 1604—WANTED.—Position in New York, proficient operator and bridge worker; ten years' experience. Address "CENTURY," care "Items of Interest," 115 W. 42d st., New York.
- 1605—A New York City graduate, thirty years of age, of good steady habits is open for position outside New York State after January 1. Good all around man. Address DR. L., 123 W. 63d st., New York City.
- 1606—FOR SALE.—Old established dental practice \$750. Retiring. Cash only. Address R. E. KENEDY, Seattle, Washington.
- 1607—WANTED.—Operators and all around men. Offices bought and sold. NEW ENGLAND DENTAL AGENCY, Hartford, Conn. (Established 1893).
- 1608—FOR SALE.—On any reasonable terms to good responsible man; \$2,000; practice, office outfit and new modern residence in thriving North Michigan town. Possession April 1, 1901. Good reasons. Address 1608, care "Items of Interest," 115 W. 42d st., New York.
- 1609—ADVERTISING OFFICE FOR SALE.—Established over twelve years in one office. City over 200,000 population. Business has run \$10,000 to \$15,000 cash. Price \$1,500 cash to quick buyer. Investigate, but don't write unless you have the money, as we haven't time for useless correspondence. Address "OPPORTUNITY," care "Items of Interest," 115 W. 42d st., New York.
- 1610—WANTED.—Skillful experienced all round dentist for Minnesota. Good appearance. Good salary to right man. No medium talent. Address "ROSS," care "Items of Interest," 115 W. 42d st., New York.
- 1611—WANTED.—First class operator to take charge of established advertising office. New York State. Address 1611, care "Items of Interest," 115 W. 42d st., New York.
- 1612—SELL through us. Fine openings. Free to buyers. Four assistants needed. NATIONAL DENTAL AGENCY, Lima, Ohio.

Ripans Tabules cure nausea.
Ripans Tabules cure headache.
Ripans Tabules cure flatulence.
Ripans Tabules cure dyspepsia.
Ripans Tabules cure biliousness.
Ripans Tabules cure constipation.
Ripans Tabules: pleasant laxative.

PATENTS

procured promptly and properly in all countries. Trade marks and copyrights. **Davis & Davis, Attorneys-at-Law.** Offices: St. Paul building, New York, and 709 G St., opp. Patent Office Washington, D. C.



IF YOU SHOOT a Rifle, Pistol or Shotgun you will make a *Bull's Eye* by sending three 2c. stamps for the *Ideal Handbook "G,"* 130 pages Free. The latest Encyclopedia of Arms, Powders, Shot and Bullets. Mention "Dental Art" Ideal Manufacturing Co., New Haven, Ct., U. S. A.



Desensitor will not produce sloughing of the gums or any other injurious effects.

Desensitor is supplied to Dentists in wide-mouth one and two-ounce glass bottles, bearing full directions for its use.

Prices: 1-oz., \$1.00; 2-oz., \$2.00; 6-oz., \$5.00.

ELLIOTT & CO.,

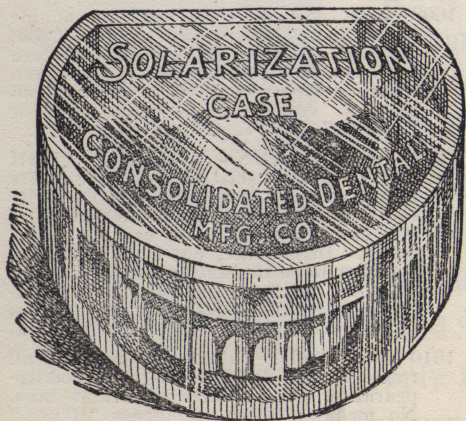
22 Hanover Street,
EDINBURGH, SCOTLAND,

Dental Depot Specialists, have exceptional facilities for introducing novelties and goods, before the Dental Profession throughout Europe.

CORRESPONDENCE INVITED.

Desensitor is a harmless local anesthetic, composed of Hamamelis, Alcohol, Iodoform, Baptista, and one per cent. Cocaine, compounded together, for desensitizing the gum tissues while extracting teeth. Desensi-

Solarization Cases



Inside Dimensions.

No. 582 A— $3\frac{3}{8}$ x $2\frac{1}{4}$ x 1 in. . . . 25c.

No. 582 B— $3\frac{3}{8}$ x $2\frac{3}{8}$ x $2\frac{1}{8}$ in. . . . 35c.

By Mail, 5c. Additional.

Price.

FOR the proper development of that desirable bright, rich color of dental rubber (particularly pink rubber), a

SOLARIZATION CASE

is a necessity. These Solarization Cases are designed to fill the demand for a

SPECIAL RECEPTACLE

for the solarizing process. A denture submerged in alcohol placed in one of these Solarization Cases and exposed for a short time to the light of the sun will have a beautiful pink shade closely resembling the natural color of the gums.

Solarization cases are made of heavy flint glass with neatly fitting lid and of proper shape to produce the best results, and the rapid evaporation of the alcohol is avoided.

THE ANGLE SCHOOL OF ORTHODONTIA for the fitting of teachers and specialists in orthodontia. Two short sessions are held each year, beginning November 1 and May 1. Post-graduates in dentistry, and only those thoroughly ethical, received. Class limited to fifteen members.
For information, address EDWARD H. ANGLE, M.D., D.D.S., 1023 North Grand Ave., St. Louis, Mo.

OBTUNDING PASTE

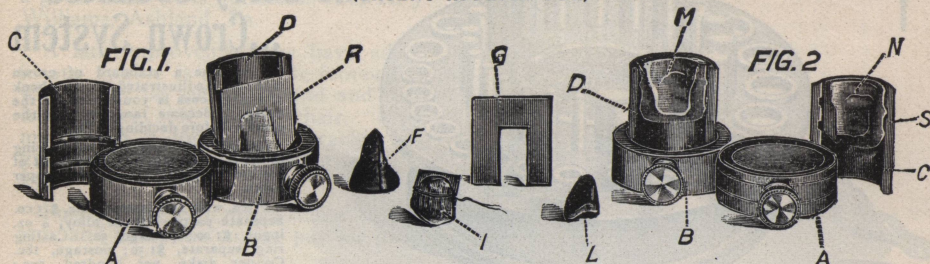
Contains Zinc Oxide, Paraform, Thymol, Petroleum, Alum, and Oil of Cloves.

Will save the nerve whenever there is any life remaining. Sensitive teeth can be excavated absolutely without any pain. Pulp partly decomposed, cut away the decomposition and cap the remaining live pulp with the assurance that it will remain alive and healthy. Price \$1.00.

DR. D. H. SMITH, SENIOR BLOCK, HOLYOKE, MASS.

WEBSTER CROWN MACHINE

(PATENT APPLIED FOR)



The ONLY ACCURATE and RELIABLE method for making PERFECT fitting GOLD CROWNS for the CENTRAL, LATERAL and CANINE teeth.

GREAT
SUCCESS

REMEMBER

HUNDREDS
SOLD

The WEBSTER CROWN MACHINE saves you money and time, and increases your practice. Write for particulars.

Working Outfit complete, Price \$5.00, prepaid.

Order direct from

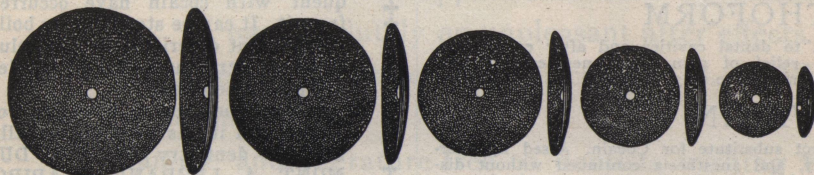
W. LLOYD WEBSTER, D.D.S.,

132 WEST 45th STREET, NEW YORK CITY.

B. H. TEAGUE

TEAGUE'S DEPRESSED DISKS.

H. P. TEAGUE



3/8 inch

1/2 inch

5/8 inch

3/4 inch

7/8 inch

Depressed Paper Disks, Box of 100.....	15 cts.
" Cloth " " 100.....	25 "
" Assorted " " 200.....	30 "
" " " " 400.....	55 "
" " " " 500.....	70 "

TEAGUE'S OTHER SPECIALTIES

Impression Compound	4-lb. can	50 cts.
Sandpaper Strip Chuck		25 "
Cavity Cap Disks	per 100	25 "
Capsicum Plasters		100 40 "
Arm-rest		\$1.00

THE TEAGUE DENTAL SUPPLY CO., Leonard Bldg., Augusta, Ga.

VOLUMES I AND II OF FARRAR'S GREAT WORK ON IRREGULARITIES OF THE TEETH AND THEIR CORRECTION

By JOHN NUTTING FARRAR, M.D., D.D.S., New York City.

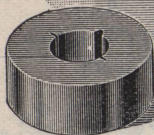
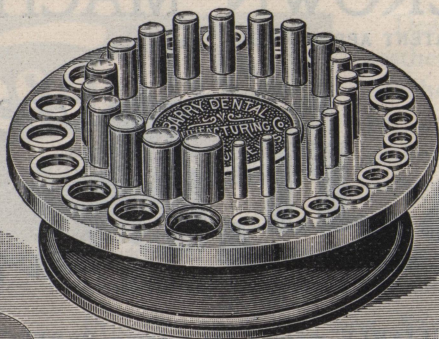
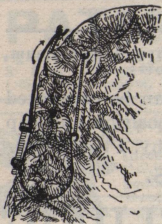
"Unquestionably the most practicable work, upon the subject, attempted in this century, and it is doubtful if it can be improved upon in the next."—*International Dental Journal*.

READ THE GLOWING REVIEWS IN THE DENTAL JOURNALS.

Among the most extensive sale of any large work in dentistry.

Sold by INTERNATIONAL NEWS CO., 83 Duane Street, N. Y. CITY, and Pream's Buildings, Chancery Lane, London, ENGLAND, and 18 Stephanstrasse, Leipzig, GERMANY.

PRICE OF EACH VOLUME: In full cloth (gilt back, top and an outline medallion on sides), \$6.00; in cloth sides, morocco back (gilt back, top and similar figure on sides), \$7.00; in sheep, \$8.00; in half morocco, \$8.00.



The Berry Seamless ...Crown System

has become a standard of crown making. An illustrated direction book of the process is yours free for the asking. Become familiar with the system before deciding to buy.

Complete set consisting of drawing tools, one casting ring, one ingot of fusible alloy and a supply of copper disks.

Price, with full instructions, \$15.00. Separate parts—Fusible alloy, 4 oz. ingot, \$1.00; postage, 5c. Casting ring, separate, \$1.50; postage, 15c. Copper disks, per hundred, 50c.; postage, 2c.

BERRY DENTAL MFG. CO.

421 Milwaukee St., Milwaukee, Wis.

Order from us or from your favorite dealer.

Dental.... Requisites.

*LOCAL ANESTHETICS which are
NON-TOXIC, NON-IRRITATING
and ANTISEPTIC.*

ORTHOFORM

Applied to dental cavities and after extractions, for the relief of pain. The anesthesia is prolonged for from 10 to 36 hours.

NIRVANIN

A perfect substitute for Cocain. Used hypodermatically, and anesthesia continued without disturbing the patient's circulation, respiration or mental condition.

LITERATURE ON APPLICATION
TO SOLE AGENTS,

Victor Koechl & Co.,

122 HUDSON ST., NEW YORK.

FOR SALE BY
CONSOLIDATED DENTAL MFG. CO.

BETA-EUCAIN

(Eucain Hydrochlorate "B")

An absolutely safe and non-irritating and perfected local anaesthetic, identical in anaesthetic action with cocain, over which it possesses the following advantages:

It is three and three-quarter times less toxic, does not affect the heart, and none of the accidents so frequent with cocain have occurred from it. It can be sterilized by boiling without deterioration. Its solutions are permanent and do not decompose when kept.

Its field is coextensive with that of cocain, and it has been successfully used in dentistry by DRs. DUMONT, A. LEGRAND, CHAPIRO, KIESEL, S. C. G. WATKINS, A. H. PECK, and others, who have borne testimony to its efficacy and safety.

In dentistry 2 per cent. solutions prepared, with distilled water and sterilized by boiling should be employed.

The price of Beta-Eucain is considerably lower than that of cocain.

SCHERING & GLATZ, New York,
Sole Agents for U. S.

Literature upon application.

The Claims...

made for a machine by its makers may fail of full belief, but when backed up by a "cloud of witnesses"—that's different.

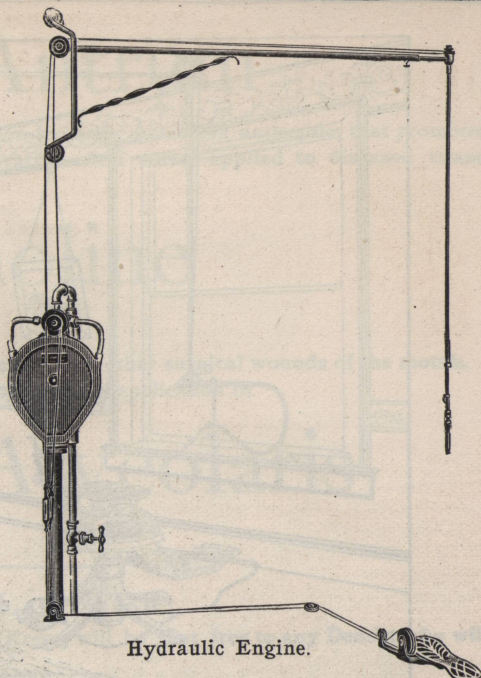
My machine is doing all I want it to do and doing it as well as I want it to do.—Dr. T. S. Cartwright, Van Alstyne, Texas.

My motor is a dandy—electricity can't compare with it.—Dr. I. B. Carolus, Sterling, Ill.

I am highly pleased with your motor and would not go back to "kicking" for a good deal. It is noiseless.—Dr. H. J. Williams, Ashland, Pa.

A late improvement we have added to our engine is a movable footswitch, which may be kicked around and used from either side of the chair. Price motor, No. 2, foot switch, bracket, engine head, driving cord and wire cable, \$50.

Possibly we can make terms to suit you, and make the engine pay for itself.



Hydraulic Engine.

SIMS HYDRAULIC ENGINE CO., Lincoln, Neb.

Phénol Sodique

IS RECOMMENDED for use after the extraction of teeth by hundreds of leading dentists. It controls hemorrhage, relieves soreness, and promotes healing and hardening of the gums. One or two teaspoonfuls in a glass of water used as a mouth-wash is their routine treatment, and the results are appreciated alike by patient and dentist. It has absolutely no unpleasant after effects.

In ordering or prescribing specify H. B. & W. and accept no substitute.

Sample and literature free to dentists wishing to try Phénol Sodique.

HANCE BROTHERS & WHITE

ESTABLISHED 1856.

Pharmaceutical Chemists

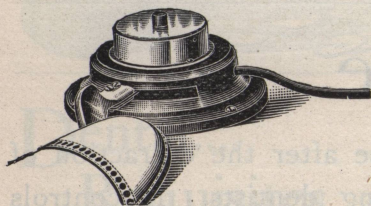
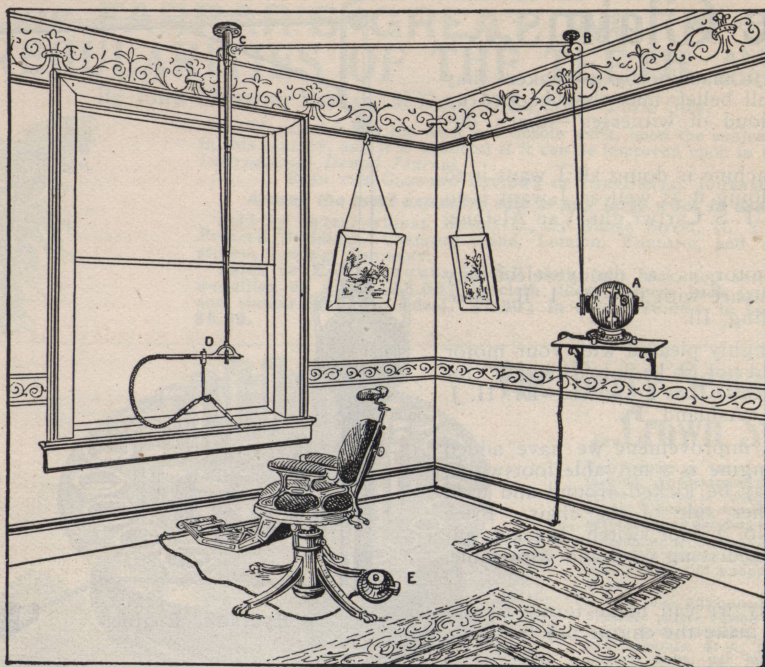
PHILADELPHIA

NEW YORK

CHICAGO

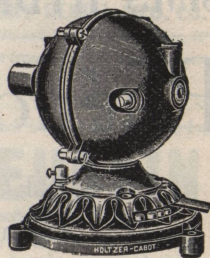
PITTSBURG

LONDON



Rheostat. Cut 1-6 size.

The Latest



Motor (with groove pulley.)

L. J. MASON & CO.'S

New Electric Dental Engine for the 110-Volt Direct Current

Price Complete, \$70.00

Same outfit with motor large enough to run your lathe and engine for ten dollars more. You can put motor in laboratory.

This outfit consists of motor, rheostat (with ten feet of electric wire cable), ceiling bracket (either oxidized or nickel plated) swinging on a friction joint that holds engine head in any position around the chair, one pair ceiling pulleys, engine head, cable, sleeve, flexible attachment and coil spring, handpiece and fifty feet of engine cord.

The rheostat will give 4 speeds with instantaneous reverse or stop.

Everything first-class and beyond question the greatest value for the price quoted that has ever been offered to the profession.

Manufactured Solely By

L. J. MASON & CO.

108 and 110 Randolph St.
... CHICAGO ...

Abscessed Antrum

Is most successfully treated with a non-irritating **ALKALINE antiseptic**, that promotes osmosis, and gives a distinct alterative effect when applied to diseased tissue. This result is produced by

Glyco-thymoline

(KRESS)

It is especially indicated after extraction and other surgical wounds of the mouth. As a wash for Abscessed Antrum and a topical application in

Pyorrhoea Alveolaris

Its therapeutic action is unequalled.

SPECIAL OFFER:

A pound bottle of GLYCO-THYMOLINE (Kress) will be sent free to any Dentist who will pay express charges.

M'fg Chemists.

KRESS & OWEN CO.,

221 Fulton St.,
NEW YORK.

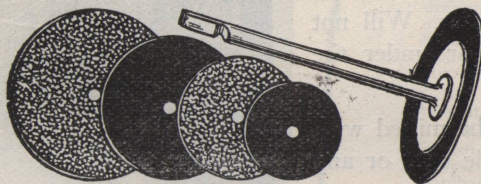
SOMETHING NEW!

HALL'S FLEXILE SEPARATING DISK.

Experience in bridge work has shown the need of a good **EDGE CUTTING DISK** for separating and trimming around the teeth to be crowned. For this purpose we have produced a **NEW and RAPID CUTTING DISK**. It is semiflexible, which permits of some lateral motion without breaking. A small hub in the center gives strength. Cuts dentine or porcelain with equal facility. Are thin and waterproof.

Price, 10 Cents Each.

HALL'S CARBORUNDUM RUBBER DISKS.



These disks are made thin and flexible about the same in thickness as paper disks, but more durable; having a hard rubber backing, which admits of more pressure and rapid cutting.

The grit with which these disks are made is the celebrated new abrasive **CARBORUNDUM**, which is noted for its remarkable hardness and keen cutting qualities.

We have added to our line of disks an **EXTRA THIN** rubber disk that is as flexible as the usual paper ones, and being waterproof, will last ten times as long as paper, thus saving the time of the operator that is wasted in changing disks.

Price, 40 Cents per Package.

HALL'S ABRASIVE WHEEL (Patent Applied For.)

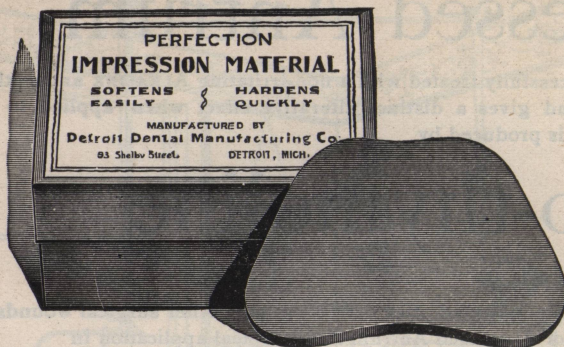
Is a new grinding wheel for dressing off the rough surplus rubber, just after removing the plate from the vulcanizer. Cuts very fast, much superior to files or scrapers. It is made of numerous layers of emery paper, which may be removed one at a time when worn out, exposing a fresh layer for further use. Two sizes, 1 and 1½ inches diameter.

Price, 15 and 20 Cents each.

WM. R. HALL & SON, 115 N. 17th Street, PHILADELPHIA, PA.

Goods sent post paid on receipt of price in Post Office or Express Order.

Perfection Impression Material



IT IS IMPOSSIBLE to make good work on a poor impression. Very little improvement has been made in impression materials for years. Perfection Impression Material is an entirely new production in this line, with which most excellent results can be obtained.

It softens in hot water in which the hand can be held without burning. Is made perfectly soft without being so hot as to burn the patient's mouth.

Then again it hardens very quickly in the mouth, and becomes so hard that it will not spring in a few minutes without applying cold water. The range of temperature required to change it from the soft to the hardened state is very small. As it can be used very soft, a very sharp impression can be taken with it. It is made in forms just right shape to fit your tray.

Price, per Box, 50c.

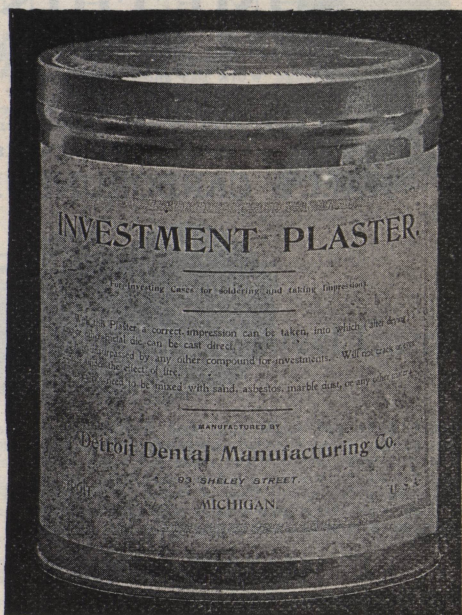
Investment Plaster.

For Investing Cases for Soldering and Taking Impressions.

With this plaster a correct impression can be taken, into which (after drying) a zinc or other metal die can be cast direct.

It is unsurpassed by any other compound for investments for crown and bridge work. Will not crack or even discolor under the effect of fire.

Does not need to be mixed with sand, asbestos, marble dust or any other material.



Price:

10-lb. Can

\$1.00

Detroit Dental Manufacturing Co.,

93 Shelby St., DETROIT, MICHIGAN, U. S. A.

CROWNS AND BRIDGES

SEND FOR
CIRCULAR
AND
PRICE LIST

GEO. W. JAMIESON

E & B Building

ROCHESTER, N. Y.

MENTION "ITEMS"

ODONTUNDER.

Over Ten Years' Standing Without a Single Fatality.
Write for our Special Terms.

Odontunder is Guaranteed to give Perfect Satisfaction.

Odontunder will not deteriorate. Every bottle guaranteed. Cash to accompany order or goods sent C. O. D.

Single Bottles, 2 oz., \$2.00 by Express.

Three Bottles, 6 oz., \$5.00 by Express prepaid.

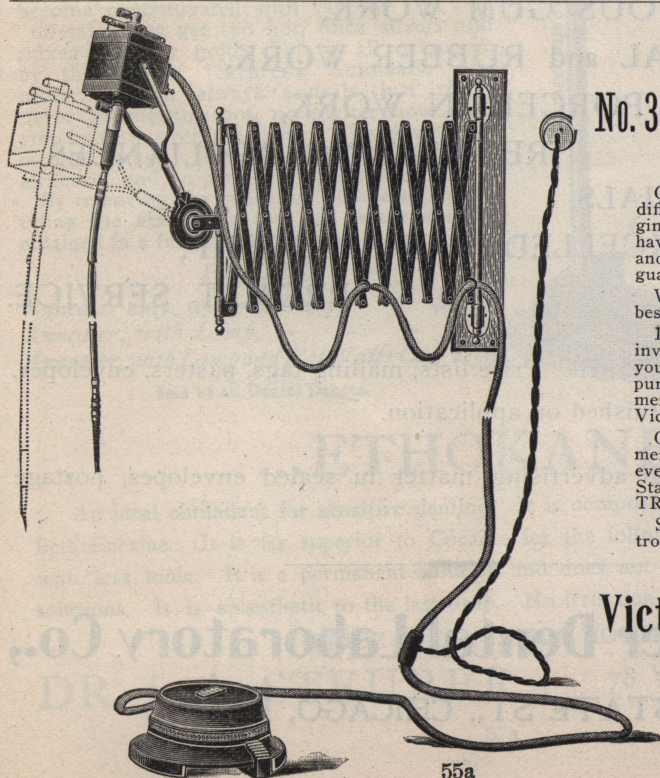
Six Bottles, 12 oz., \$10.00 by Express prepaid.

Beware of any one else offering Odontunder for sale or claiming to have bought the formula. Odontunder is sold only from the house direct.

Odontunder Manufacturing Co.,

FREDONIA, N. Y.

References: Commercial Reports, Fredonia National Bank.



VICTOR

No. 3 Electric Dental Engine

Cut shows one of our many different styles of electric engines and dental motors. We have them to suit all tastes and purses, and every one is guaranteed for two years.

We can furnish you the best at a reasonable price.

It will cost you nothing to investigate, and you will do yourself an injustice if you purchase an electrical equipment without looking up the Victor.

Our goods are recommended and sold by almost every dealer in the United States who is NOT IN A TRUST.

Send for our latest electro-dental bulletin.

Victor Electric Co.

418-420 Dearborn St.

CHICAGO, ILL.

J. L. DUNKEY, Manager.

Dr. CARL CHRISTOPHER, Supt.

E. B. Palmer Dental Laboratory Co.,

Established 1887.
Telephone Central 72.

Incorporated 1888.

70 State Street, Chicago.

We extend a cordial invitation to the profession to call and inspect the largest and most perfectly equipped laboratory in the world.

**We turn out more work
than all other laboratories
in Chicago combined.**

CROWN and BRIDGE WORK,
CONTINUOUS GUM WORK,
METAL and RUBBER WORK,
PORCELAIN WORK,
REGULATING APPLIANCES.
FINEST MATERIALS,
UNEXCELLED WORKMANSHIP,
PROMPT SERVICE.

Correspondence solicited. Price lists, mailing tags, pasters, envelopes, mailing boxes, etc., furnished on application.

We mail all of our advertising matter in sealed envelopes, postage fully prepaid.

E. B. Palmer Dental Laboratory Co.,

70 STATE ST., CHICAGO, ILL.

Steurer's Plastic Gold. (Improved.)



This is a chemically pure gold in a plastic state, without admixture of any foreign substance, and has been extensively used by dentists at home and abroad for the past eleven years. In its improved form it does not crumble, but when properly annealed works like wax, and denser fillings can be made by hand pressure than with foil by means of a mallet.

It is a great time saver. It will not "ball," but spreads under the plugger and so adapts itself perfectly to the walls of the cavity. Can be used for contour work and will unite with any pure gold.

It is put up in two styles: Small square pieces, in 1-16 oz. vials; Large square pieces, in $\frac{1}{8}$ oz. boxes.

Do not be imposed upon by imitations, as this is the only "Plastic Gold in the world" that has kept up its reputation for so many years.

Price per Bottle, 1.16 oz., \$2.50

Price per Box, $\frac{1}{8}$ oz., 5.00

Cash with all orders.

Sold at all Dental Depots.

Steurer's Automatic Annealer and Water Heater.

You cannot expect your gold to work well unless it is properly annealed.

As ordinarily done, it is mere guesswork, and is as liable to be wrong as right.

It is wrong to anneal over a naked alcohol flame (as is often done), because it is apt to become contaminated with carbon.

Metal plates get too hot, mica slivers and mixes with the gold. This is all overcome by the use of "Steurer's Automatic Annealer," which always anneals just right, never getting too hot, no matter how long you leave it over the flame. Used with an alcohol lamp. Simple and strong in construction, and no parts to get out of order.

By removing the annealing plate and substituting the aluminum cup, hot water can be obtained in a few moments.

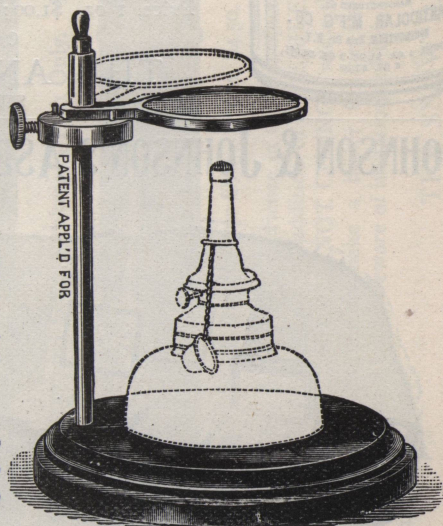
PRICES.

Annealer only, without Lamp, - \$2.00

Annealer, with Lamp, - - - 2.30

Annealer, with Lamp and Hot Water Cup 2.50

Sold by all Dental Depots.



...ETHOKANE...

An ideal obtundent for sensitive dentine. It is composed of an ethereal solution of Beta Eucaïne. It is far superior to Cocaine for the following reasons: It is 80 per cent. less tonic. It is a permanent solution and does not deteriorate like all Cocaine solutions. It is anaesthetic to the last drop. No irritation when first applied.

PRICE 50 CENTS PER BOTTLE.

DR. J. A. STEURER.

78 West 47th Street,
NEW YORK CITY.

Dr. R. B. WAITE'S LOCAL ANÆSTHETIC.



Safe, Reliable, Non-Secret.

FOR PROOF write us, stating what Anæsthetic you are now using, and receive a sample bottle free of charge.

Read what Prof. Boenning and Dr. Harding say:

PHILADELPHIA, PA., Oct. 1, 1899.
THE ANTIDOLAR MFG. Co.—*Gentlemen:* I am now using Dr. R. B. Waite's Local Anæsthetic, at the Philadelphia Dental College, with great success, and satisfaction to the faculty and patients.

Yours truly,
GEO. R. HARDING, D.D.S., of Tampa, Fla.

PHILADELPHIA, PA., Nov. 3, 1899
DR. GEO. R. HARDING.—*My Dear Sir:* I certainly take great pleasure in testifying to your skill as a Clinical Assistant and especially to your operations of extraction, and further, from all reports, consider the solution you use to Anæsthetize the mouth structures as eminently satisfactory. To the best of my knowledge no evil effects have followed its use in any case.

Yours very truly,
HENRY C. BOENNING, M.D.,
Professor of Anatomy and Surgery at the Philadelphia Dental College.

FREE Until Dec. 31, 1900, an all-metal or glass barrel Syringe upon receipt of your first \$5.00 order.

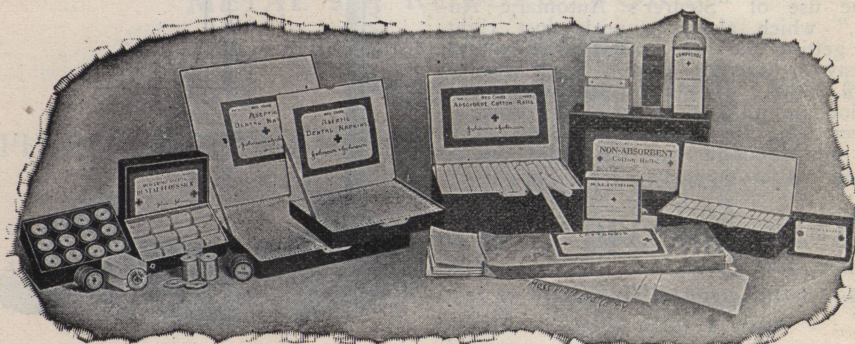
FOR SALE BY ALL DENTAL DEPOSITS.

Price, 1 oz., \$1.00; 2 ozs., \$2.00; 6 ozs., \$5.00; 12 ozs., \$10.00.

Or mailed upon receipt of price.

THE ANTIDOLAR MFG. CO.,
SPRINGVILLE, ERIE CO., N. Y.

JOHNSON & JOHNSON'S ASEPTIC DENTAL ABSORBENTS



To the discerning one who appreciates a "good thing" as soon as seen, a lengthy description is unnecessary. It is enough to say.

COTTONOID **ABSORBENT DENTAL ROLLS**
NON-ABSORBENT DENTAL ROLLS **ASEPTIC DENTAL NAPKINS**

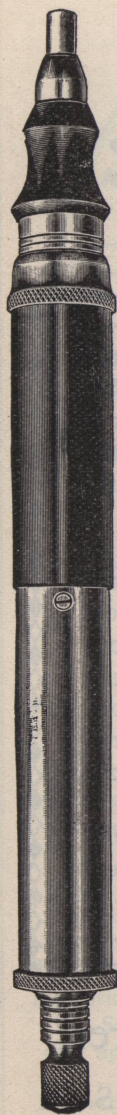
"The kind that J. & J. Make." They are surgically clean.
Sold by all dealers in Dental Supplies.

JOHNSON & JOHNSON, - - NEW BRUNSWICK, N. J.

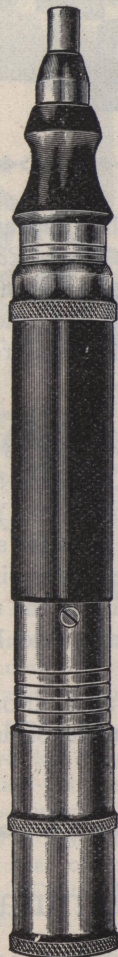
For sale by the CONSOLIDATED DENTAL MFG. CO., at all of its branches.

SNOW'S SPRING MALLETS

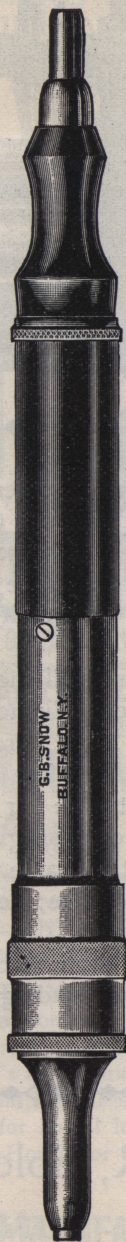
Improvement Patented July 25, 1899



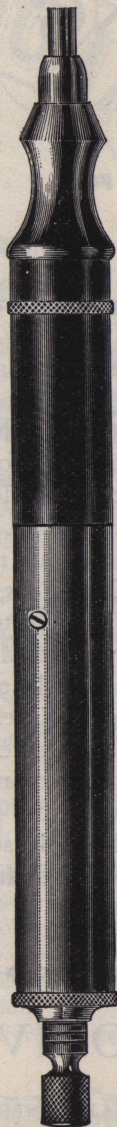
ORIGINAL PATTERN, Variable Stroke, 1-6, $\frac{1}{8}$, 1-12 Inch. Price, \$5.00.



SOUTHWICK PATTERN, Variable Stroke, 1-6, $\frac{1}{8}$, 1-12 Inch. Price, \$5.00.



DOUBLE END, Both Push and Draw Strokes, $\frac{1}{8}$ Inch Only. Price, \$6.00.



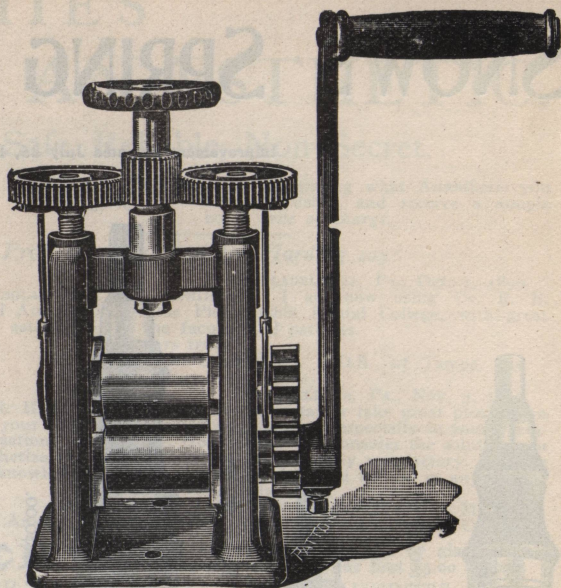
STUDENT PATTERN, $\frac{1}{8}$ Inch Direct Blow Only. Price, \$4.50.

These Mallets are the outcome of thirty-five years' experience in the manufacture of Automatic Mallets. The Original and Southwick patterns have lately been improved by the addition of a **VISIBLE ADJUSTMENT FOR THE HAMMER STROKE**. This is secured by a lock nut, and **WILL NOT CHANGE** while the instrument is in use. The shape of the hard rubber nose-piece has also been improved, and to make a better fit for the fingers. **ALL SNOW MALLETS HAVE THE HARD RUBBER GRIP**, or finger hold. Beware of imitations of this feature on inferior instruments. The Snow Mallets are manufactured only by

THE SNOW DENTAL CO., Buffalo, N. Y.

THE CROWN DENTAL ROLLING MILL

PATENT APPLIED FOR



For some months past our advertisement has appeared in the various dental journals, illustrating our *Crown Dental Rolling Mill*, the only mill that the dentist should use, for the reason that it is the best made, the strongest built, the easiest to work, and the lowest in price, considering the quality, utility and real worth of the machine offered.

In describing this mill, we will mention that the weight is 45 pounds. *The Rolls*, 2 inches diameter by 3 inches long, are made of the finest crucible steel, hardened, ground, and finely polished; are warranted hard, and free from flaws and soft spots. The gears on the rolls are cut from bar steel, pressure screws are of steel, with geared heads, connecting to the center pinion; one hand operates both screws, at the same time lifting the upper roll by means of our improved device; no springs, and both rolls quickly removed from the frame.

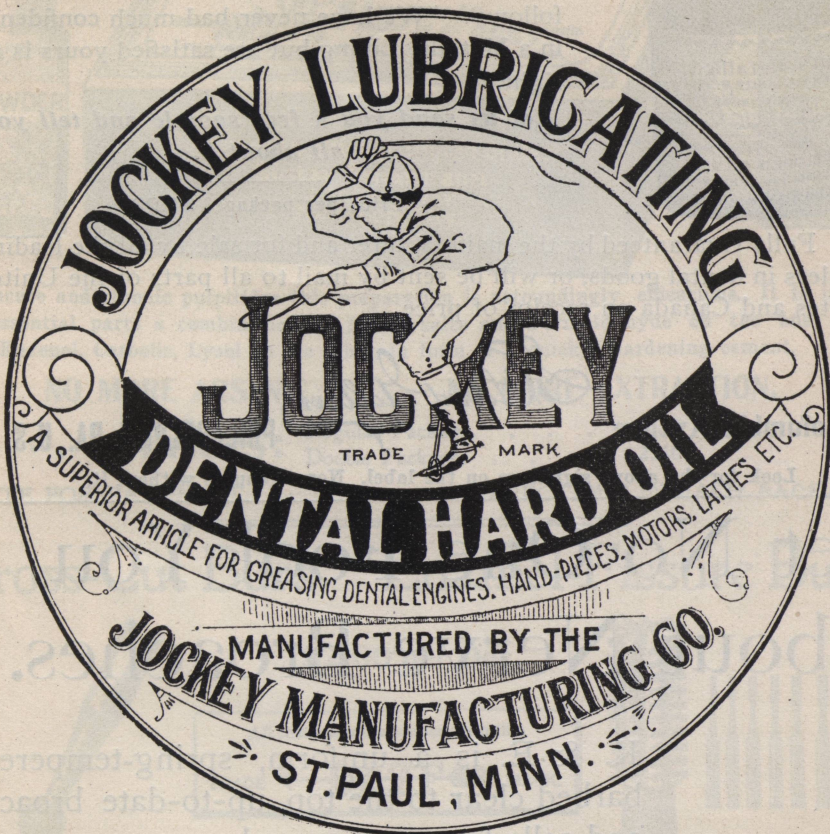
We would be pleased to quote price on application, or you can obtain the mill of any of the leading dental depots in this and other countries.

W. W. OLIVER, Sole Manufacturer,

1487-1489 NIAGARA STREET, - BUFFALO N. Y. U. S. A.

Dentists See Here!

HAVE you ever had trouble with oil dripping into the mouths of your patients from the hand-piece, besmearing your hands, etc. Have you ever had trouble with your hand-pieces running dry and "sticking" from saliva getting in between the bearings and rusting? Did your hand-piece ever become gummy? If you have, then you should stop using oils for lubrication and use the latest dental lubricant, "JOCKEY LUBRICATING HARD-OIL."



One application to the hand-piece will last a month without dripping, without gumming or running dry. **WILL ANY OF THE OILS DO THIS?**

Heat will not affect it nor will saliva interfere with it.

ISN'T IT WORTH YOUR CONSIDERATION?

Hand-pieces will last longer then, don't you suppose?

The Jockey Hard-Oil is made from pure mineral oils. No animal fats, vegetable oil or bone-grease entering into it's composition. Will not become rancid, but will keep indefinitely in any climate and has far more lasting qualities than the best or high-priced perfumed oils made for dental lubrication.

For Sale by all Dental Supply Houses or sent direct for 25 cts., if your dealer isn't up to times.

MANUFACTURED BY THE



JOCKEY MANUFACTURING CO.

St. Paul, Minn.

The Testimony...

of those who are familiar with the merits of any preparation is its best recommendation.



One of the large dealers in dental goods who has been selling Gilbert's Metallic Lining ever since it first came out, more than two years ago, after ordering a stock of the lining writes us as follows: "We have never had much confidence in a Metallic Lining but are satisfied yours is all right."

Let us send you a free sample and tell you all about it.

Price per package, \$1.00

Fully Guaranteed by the manufacturer and for sale by all the leading dealers in dental goods, or will be sent by mail to all parts of the United States and Canada on receipt of price.

S. Eldred Gilbert

1627 Columbia Avenue

PHILADELPHIA, PA., U. S. A.

Look for the above signature on the label. None genuine without it.

Let No One Fool You About Nerve Broaches.

K. & E. is a uniform, spring-tempered, barbed clear to the top, up-to-date broach, and sells for 75c. per package.

K. & E. revelation cut bur is the best tempered bur on the market.

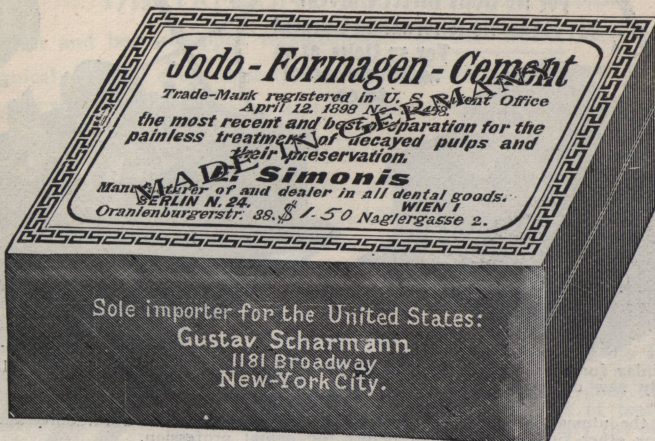
Do not be controverted by smooth talking salesmen; send direct to the manufacturers.

KRETCHMAR & ENGLISH,

125 SOUTH CLARK STREET, CHICAGO.

Jodo-Formagen Cement

Trade Mark registered in U. S. Patent Office, April 12, 1898, No. 31458.



IN acute and chronic pulpitis this preparation is astoundingly efficacious. It is in its essential parts a combination of Jodine salts and Formaldehyde on the one part, and Eugenol, Carbolic, Lysol on the other, in form of a quickly hardening cement.

NO MORE ARSENIC.

NO MORE EXTRACTION.

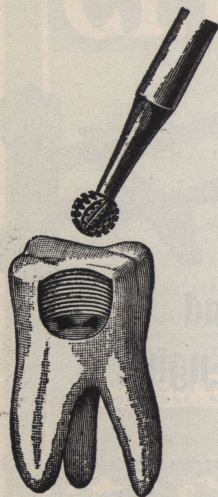
Prices: Regular Package, . . . \$1.50
Double Package, . . . \$2.50

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DIRECTIONS IN EACH PACKAGE

Cross-Cut Burs Enamel-Fissure Burs

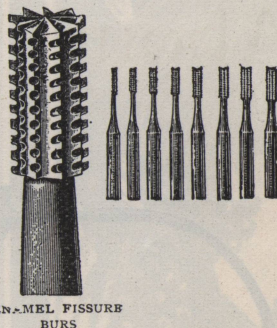
\$2.00 per Doz.



This illustration represents a cavity cut by a CROSS-CUT BUR. The cut GROOVES are of IMMENSE VALUE for fixing or holding whatever stoppings are used.



Write for Catalogue.
For Sale by
All Dental Depots and Dealers.



ENAMEL FISSURE BURS

GUSTAV SCHARMANN,

1181-1183 Broadway,

Corner 28th Street.

Baudouine Building,

SOLE U. S. AGENT FOR
B. SIMONIS, BERLIN.
A. MEISINGER, DENTIST, NEW YORK.

NEW YORK

The HAMMOND SECTIONAL ELECTRIC INLAY FURNACE.....



Fig. 1.



Fig. 2.

Among the inlay furnaces now on the market, The Hammond Sectional Electric Inlay Furnace marks an entirely new departure.

GREAT DURABILITY

It combines the utmost simplicity of construction and operation with a durability and efficiency not approached by any other furnace at present before the dental profession.

DOES NOT BURN OUT

The liability to burn out or short circuit has been almost absolutely eliminated.

INTENSE HEAT

Owing to the improved method of wiring, this furnace produces the highest degree of heat ever attempted in a platinum wound furnace.

PERFECT CONTROL

It is under the most perfect control of the operator, so that he is able to secure just the degree of heat necessary to do the particular work in hand.

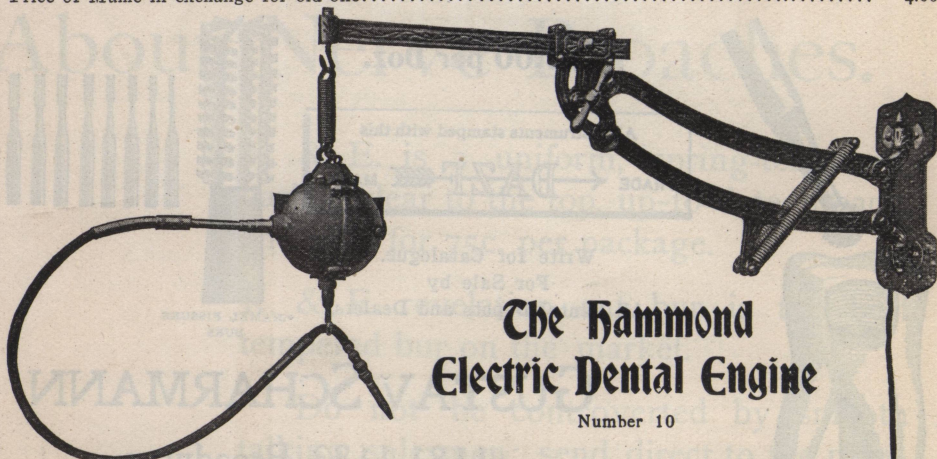
SECTIONAL FEATURES

The working parts of this furnace are interchangeable so that in case of accident they may be removed and replaced in the shortest time.

TWO COMPLETE FURNACES IN ONE

In purchasing a Furnace, you secure an extra platinum wound muffle which is included in the price; therefore, in case of accident you need not be delayed even to repair the break at the time, for, by simply changing the muffle you are enabled to go on with your work, with hardly an interruption.

Price of Furnace complete, including extra Muffle.....	\$35.00
Price of Muffle alone.....	8.00
Price of Muffle in exchange for old one.....	4.00



The Hammond Electric Dental Engine

Number 10

This Engine is one of the strongest and most beautiful machines on the market. It is durable and efficient. It has a Strong Pull and is Strongly Constructed. It runs uniformly smooth and satisfactory. It has a Powerful Pull, and is practically noiseless. The motor has a laminated field and armature, and is shunt wound. These features insure the greatest possible power on all speeds. It is automatically lubricated, and with indifferent care will run for years.

Price complete, including The Hammond Controller, cable, flexible arm and hand piece, \$80.00.

Manufactured by **JOHN F. HAMMOND,** 35-43 West 125th Street, NEW YORK, N. Y.

W. H. STOWE, Pres.

F. F. EDDY, Treas.

Boston Dental Laboratory Company,

171a TREMONT ST., BOSTON, MASS.

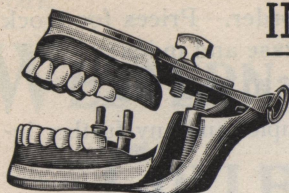
The largest and best equipped establishment in the world, devoted exclusively to fine mechanical work of every description for the Dental Profession.

SPECIALTIES:—Crown, Bridge and Continuous-Gum Work.

HAND CARVED TEETH made to order for each case.

SEND FOR ILLUSTRATED CATALOGUE AND PRICE-LIST.

BRANCH OFFICE: 441 BUTLER EXCHANGE, - - - PROVIDENCE, R. I.



Patented May 19, 1891.

" May 3, 1892.

INCREASE YOUR BUSINESS

Are you up-to-date with your plate work? Can you satisfy your patients by keeping the lower plate in its proper place?

The Stedman Dental Spring does it, and is the only thing that will keep a full set of teeth in their proper place during mastication. Satisfy the old folks with teeth and you get the balance of the family. The Springs will not interfere with cheek or tongue, allows for all lateral motion and free movement of the jaws.

Any dentist can use them.

Price \$4.00 per set, with full instructions.

STEDMAN DENTAL SPRING CO.

For Sale by all Dental Depots.

70 STATE STREET, CHICAGO.

CLYDE LINE

DIRECT WATER ROUTE FROM
BOSTON, PROVIDENCE AND
NEW YORK TO CHARLESTON,
AND JACKSONVILLE

FLORIDA

Fast Modern Steamships. Three Weekly Sailings.

From Pier 45 N.R. New York.

RAIL CONNECTIONS TO ALL SOUTHERN RESORTS.

WM P. CLYDE & CO.
GENERAL AGENTS.

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GENERAL MANAGER.

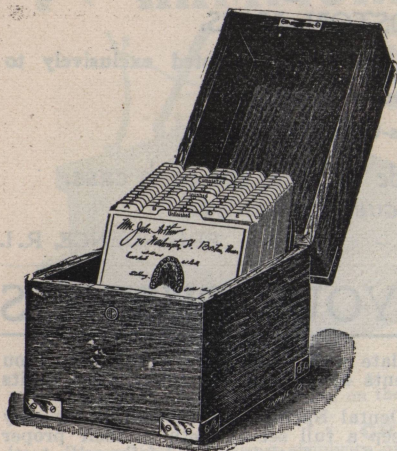
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To FLORIDA



PRESBRY ADV. AGENCY N.Y.

The Triggs Dental Charts.



A Modern Card Index System of

DENTAL BOOKKEEPING.

It affords easy and rapid reference to all accounts, no matter how old; is simple in construction and inexpensive. We carry three styles of charts and can make special forms to order. Prices for stock charts, including case and index:

\$6, \$8, \$10 and \$12.

Write us for samples and any further information desired.

THE TRIGGS SYSTEM OF DENTAL CHARTS may be ordered from the Consolidated Dental Mfg. Co., Sole Agent, at its home office, No. 115 W. 42d St., New York, from its branch houses in Boston, Providence, Brooklyn, Buffalo, Philadelphia, Baltimore, Atlanta, Chicago, New Orleans, and from any of the Company's agencies throughout the U. S. and Canada, and foreign countries.

A Summer School of Dentistry.

ILLINOIS MEDICAL COLLEGE SUMMER SCHOOL

(CO-EDUCATIONAL)

has opened a regular graduating School of Dentistry. Course consists of four years of six months each. Session from March 1st to September 1st. Each session is divided into TWO TERMS of THREE MONTHS each. Attendance upon one (3 months) term entitles student to credit for half year's work.

NEXT TERM OPENS MARCH 1st, 1901.

Dean, Dr. IRA B. CRISSMAN.

For Catalogue write Secretary,

HEMAN H. BROWN, M. D.,
College Bldg., 61 Austin Avenue, CHICAGO.

CROWNS

INSTRUCTION

BRIDGES

School and Offices

510 Fifth Avenue, New York City

H. WILSON NORTHROP, D.D.S.

Fifteen years' experience as specialist enables the author to give the most thorough course of instruction in practical Crown and Bridge work in the United States. (Write for circular.)

NOTICE.—I can save you many failures in bridge work from lack of proper judgment at the start, and will give accurate advice and instructions by return mail on any case if you will forward model with description of mouth, and inclose \$1.00. TRY IT NEXT TIME.

WESTERN RESERVE UNIVERSITY

COLLEGE OF DENTISTRY

Those who propose to become students of Dentistry are cordially invited to send for information to W. H. WHITSLAR, M.D., D.D.S., Secretary, No. 29 Euclid Avenue, Cleveland, O.

Post-Graduate School and Dental Laboratory

ATLANTA, GA.

M. E. TURNER, D.D.S.

SUCCESSORS TO

W. Z. McELROY, D.D.S.

DR. THOS. P. HINMAN,

Established 1895

Our Post-Graduate School is open all the year, under our personal supervision ; careful instruction in every branch of Prosthetic Dentistry.

COURSE ONE MONTH

For further information address

Drs. TURNER & McELROY

Nos. 719 to 721 Prudential Bldg.,

ATLANTA, GA.

Michigan University Dental College.

ADMISSION EXAMINATIONS are held during the last week of June and Sept.

THE ANNUAL TERM begins September 25 and continues for nine months, closing the 20th of June.

THE AVERAGE ANNUAL FEES for tuition and laboratory expenses will be about \$65 for non-residents of Michigan.

THE ANNUAL ANNOUNCEMENT contains particulars and will be sent on request.

J. TAFT, Dean, ANN ARBOR, MICH.

Tuft's College Dental School Boston, Mass.,

For Men and Women.

formerly Boston Dental College,

Member American Association Dental Faculties.

THE NEXT ANNUAL SESSION COMMENCES
FIRST WEDNESDAY IN OCTOBER.

For Catalogues, address the Secretary,

CHARLES P. THAYER, A. M., M. D.,

74 BOYLSTON STREET, BOSTON, MASS.

Northwestern University Dental School

One of the largest and most thoroughly equipped institutions of its kind in the world; giving to each student the maximum amount of individual instruction.

Session of 1900-1901 begins October 3, 1900.

DR. WM. E. HARPER, Secretary,

146 Franklin St., Chicago, Ill.

WASHINGTON DENTAL COLLEGE AND HOSPITAL OF ORAL SURGERY.—Session of 1900-1901
No. 625 Massachusetts Avenue, Northwest, Washington, D. C.

FACULTY:

W. WARRINGTON EVANS, M.D., D.D.S., President, Prof. of Oral Prosthetics.

AUG. WILSON SWEENEY, D.D.S., Prof. of Operative Dentistry.

JESSE RAMSBURGH, A.M., M.D., Prof. of Oral Surgery and Pathology.

EDWIN R. HODGE, M.D., Prof. of General and Dental Anatomy.

W. M. BARTON, M.D., Prof. of Materia Medica and Anesthesia.

MONTE GRIFFITH, M.D., Prof. of Physiology and Hygiene.

CHAS. E. FERGUSON, M.D., Prof. of Chemistry and Metallurgy.

WM. N. COGAN, A.M., D.D.S., Dean, Prof. of Dental Technics and Orthodontia.

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JOS. WALL, M.D., Demonstrator of Practical Anatomy and Adjunct Prof. of Anatomy.

WITH A Select Board of Special Lecturers and Clinical Operators.

The regular session of this College will begin Oct. 1, 1900, and terminates in May, 1901.

EDUCATIONAL CENTRE AND LOCATION.

Washington as an educational centre is becoming well known all over the world, being the Capital of a vast nation, centrally located, the great government wheel vibrating through the winter season, the headquarters of the Legations of all the foreign governments, etc., making it politically and socially as well as educationally, the most attractive city in the world.

The Government Museums and Libraries are unrivalled. The Medical Museum and Library affords special advantages to the dental student found in no other city. It contains a dental department both in the Museum and Library, the latter possessing the largest and best collection of dental works in the world, while the government permits the use of text books free of cost. The new Carnegie Free Library will be located within one square of this College. The College itself is central, yet quietly located. The three principal trunk lines of rapid transit street cars are all within two squares of the College, one line passing the door. The building is well adapted for its purpose; is new and modern throughout, with large laboratories for dental, chemical, microscopical, bacteriological, histological and other work, together with large well lighted clinic and lecture rooms, and every other desired convenience. The Department of Oral Surgery will be a special feature, under the manipulative skill of the Oral Surgeon.

QUALIFICATIONS FOR ADMISSION.

This College conforms to the rules and conditions of the National Association of Dental Faculties, also the National Association of Dental Examiners

PRIZES.—Three College Prizes are awarded each year for proficiency in practical work and studies to successful candidates.

FEES.—Tuition fees are \$100 per year, with no extras.

The preliminary entrance examination will be held at the College, Friday evening, Sept. 28, 1900, at 7.30 o'clock.

Washington, owing to its numerous boarding houses and hotels, presents facilities for obtaining excellent board and room, varying in rate of charge, from \$3.00 per week upwards.

Students should call upon the Secretary immediately upon arriving in the city.

For general announcement and further information please address

DR. W. W. EVANS, Pres't, 1756 M St., N. W.

DR. W. N. COGAN, Dean, 1754 M St., N. W.

BIRMINGHAM DENTAL COLLEGE

BIRMINGHAM,
ALABAMA.

...Session 1900-1901...

The regular Winter Season will begin first Tuesday in October 1900, and continue until May, 1901.

ALL THE BRANCHES APPERTAINING TO

DENTAL SCIENCE AND ART

ARE THOROUGHLY TAUGHT.

THIS COLLEGE IS A MEMBER OF THE NATIONAL ASSOCIATION
OF DENTAL FACULTIES.

For Catalogues and other information, address

T. M. ALLEN, D.D.S., DEAN,

P. O. Box 718,

BIRMINGHAM, ALA.

Philadelphia Dental College and Garretson Hospital of Oral Surgery

College removed to its large new buildings at 18th and Buttonwood Sts. Two hundred feet of northern exposure in Infirmary and Laboratory. Electric current for lighting and motive power. Wilkerson and Columbia operating chairs.

Furnishing and equipment all new and modern.

A thorough didactic and practical course in all that pertains to dentistry.

Winter term begins October 4th, and continues for seven months. Spring term begins May 6th.

Tickets for each course, including the Demonstrator's, \$100; Matriculation, inclusive of Syllabi for home study, \$5 for each course; Examination and Diploma Fee, \$35. Board, \$4 to \$6 per week.

Announcements and full information can be obtained by addressing

S. H. GUILFORD, D.D.S., Dean, 18th & Buttonwood Sts., Philadelphia, Pa.

Pennsylvania College of Dental Surgery

Eleventh St., below Spruce, corner of Clinton St.

FORTY-FIFTH ANNUAL SESSION, 1900-1901

FACULTY

- C. N. PIERCE, D.D.S.,
Professor of Principles and Practice of Operative Dentistry.
- WILBUR F. LITCH, M.D., D.D.S.
Professor of Materia Medica, Therapeutics, and Principles of Prosthetic Dentistry.
- ALBERT P. BRUBAKER, M.D., D.D.S.
Professor of Physiology, General Pathology, and Bacteriology.
- I. NORMAN BROOMELL, D.D.S.
Professor of Dental Anatomy, Dental Histology, and Prosthetic Technics.
- GEORGE W. WARREN, A.M., D. D. S.
Professor of Clinical Dentistry and Oral Pathology.
- PERCIVAL E. LODER, M.D., D.D.S.
Professor of Anatomy.
- W. J. ROE, M.D., D.D.S.
Professor of Surgical Pathology and Oral Surgery.
- J. BIRD MOYER, B.S., Ph.D.
Professor of Chemistry and Metallurgy.

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FRANK S. HALL, D.D.S.,
E. A. KRETSCHMAN.

INSTRUCTOR IN CHEMISTRY

- EDWARD WAYNE, D.D.S.

INSTRUCTOR IN METALLURGY

- E. E. HUBER, D.D.S.

INSTRUCTORS IN ANATOMY

- A. GRANT LODER, A.M., M.D.,
GEORGE VARWIG, D.D.S., Asst.

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CHARLES S. HEARN, M.D.,

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- RUPERT G. BEALE, D.D.S.,
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- CHARLES P. SHOEMAKER, D.D.S.,
Instructor in Modeling.

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J. B. ZELLER.

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WM. F. LOCKWOOD, M. D., Professor of Materia Medica.

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EDW. HOFFMEISTER, Ph. D., D. D. S., Materia Medica.
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L. R. PENNINGTON, D. D. S.
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L. F. KORNMAN, M. D., Assistant Demonstrator of Anatomy.

The Baltimore College of Dental Surgery, the first, and for many years the only dental school, offers facilities for the study of dentistry proper, such as age and experience only can give. Its immense museum, complete apparatus, large and well-arranged building, and carefully studied curriculum give to its students great advantages and opportunities, both theoretical and practical, while its age gives its diplomas a dignity far outranking all other colleges—a diploma honorably represented in all civilized countries, and held by the most distinguished members of the dental profession.

The fact that dentistry must be practically taught is fully recognized, the College Infirmary, a most complete, large, and handsome hall, being daily filled with clean and respectable patients, of a class nearly equal to those of the average dentist. The infirmary is open all the year, students paying an entrance fee, which is deducted from those of the regular succeeding course.

The session begins October 1, closing in April. A large corps of demonstrators, always present, put in actual practice the teachings of all lecturers in dentistry—leaving nothing undemonstrated. All methods are fully taught, all appliances and apparatus used; the making of instruments and the most elaborate gold and continuous-gum work, and all the cases arising in ordinary practice, with many which are rarely seen, carefully demonstrated.

Commencing October 1, 1895, women will be admitted to this College, subject to the same requirements as men.

The College has formed an alliance with the College of Physicians and Surgeons, by which its students are privileged to attend all lectures and clinics. The patients of this medical school numbered last year over 40,000.

Graduates of the Baltimore College of Dental Surgery are required to attend but two sessions at the College of Physicians and Surgeons prior to presenting themselves as candidates for the degree of M. D. (See Catalogue.) The qualifications for entering the first year's course is in accordance with the resolutions adopted by the National Association of Dental Faculties.

TERMS OF GRADUATION.—Attendance on three winter courses of lectures in this College; as equivalent to one of these we accept one course in any reputable dental college. Graduates in Medicine can enter the Junior Class.

FEES.—Matriculation (paid once only), \$5.00. Tuition fees, \$100.00. Diploma fee, \$30.00. Dissecting fee, \$10.00.

Students corresponding with the Dean will please be careful to give full address, and direct their letters to

M. W. FOSTER, M.D., D.D.S., Dean, No. 9 W. Franklin St., Baltimore, Md.

Pittsburg Dental College

DEPT. WESTERN UNIVERSITY OF PENNSYLVANIA.

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J. G. TEMPLETON, A.M., D.D.S., DEAN.

Professor of General Pathology, Materia Medica and Therapeutics.

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G. L. SIMPSON, D.D.S., *Prof. of Dental Histology, Dental Pathology and Dental Therapeutics.*

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STEWART L. MCCURDY, A.M., M.D., SECRETARY, *Prof. of Anatomy, Oral and General Surgery.*

J. H. BEAL, Sc.D., Ph.G., *Prof. of Chemistry, Metallurgy and Microscopy.*

THEODORE DILLER, M.D., *Prof. of Physiology and Embryology.*

GEORGE R. SHIDLE, D.D.S., *Prof. of Anesthesia and Extracting.*

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J. F. THOMPSON, D.D.S., *Demonstrator of Prosthetic Dentistry.*

CLEMENT R. JONES, M.D., *Demonstrator of Histology, Pathology and Bacteriology.*

WALTER C. ARTHUR, M.D., D.D.S., *Demonstrator of Operative Dentistry and Technics.*

ORD. M. SORBER, D.D.S., *Assistant Demonstrator of Operative Dentistry.*

J. W. DIXON, A.B., M.D., *Demonstrator of Chemistry and Anatomy.*

CHAS. A. SIMPSON, D.D.S., *Superintendent and Demonstrator.*

This College is a member of the NATIONAL ASSOCIATION OF DENTAL FACULTIES, and matriculation and graduation of students conform to the rules of this body.

During January, February and March of 1899 the students filled over 2,000 cavities in the mouths of patients.

The building is new, with elevators and steam heat. The four floors used by the college have over 14,000 square feet of floor space and are lighted by over 2,000 square feet of window space.

REGULAR WINTER TERM begins October 2, and students must matriculate before October 12 to get credit for the term. Women admitted.

FEES:

Matriculation, paid but once.....	\$ 5.00	Dissecting fee (per part).....	\$5.00
Tuition fee	100.00	Diploma fee	30.00

For further information address

PITTSBURG DENTAL COLLEGE,

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New York College of Dentistry

Incorporated by the Legislature of the State of New York in 1865.

THIRTY-FIFTH COLLEGIATE YEAR.

The collegiate year work of 1900-1901 will consist: of a *free* Infirmary Course (*optional*) of daily infirmary practice, from May 16, 1900, to October 1, 1900, to students matriculated for the collegiate year; and, a Lecture Session (*obligatory*), of lectures, practical classes in sections and daily infirmary practice, from October 1, 1900, to about May 15, 1901.

A special feature of the curriculum of the New York College of Dentistry is that students work DAILY, for patients of the infirmary, for the entire period of their college attendance—first, second and third year—under the direction of the superintendents and demonstrators of the Infirmary.

REGISTRATION FOR THE LECTURE SESSION OF 1900-1901 CLOSES OCTOBER 10, 1900.

Applicants will be admitted to the Lecture Session of 1900-1901 as *Degree, Special or Session Students.*

1. **DEGREE STUDENTS.**—Those matriculating toward the degree of D.D.S., under the following preliminary educational requirements:

a. For those who were matriculated in a registered dental or medical college prior to January 1, 1896, no preliminary educational conditions will be required, either for the degree of the College or the license examination of the State of New York.

b. For those who were matriculated in a registered dental or medical college between January 1, 1896, and January 1, 1897, a certificate of two years of high school attendance or pass cards for 24 academic counts obtained by Regents examinations:

c. *For those matriculated between January 1, 1897, and January 1, 1901, a certificate of three years of high school attendance, or their equivalent in credentials from schools registered by the Regents or pass cards for 36 academic counts obtained by Regents examinations;*

d. *Special attention is called to the fact that there will be required of those not matriculated before January 1, 1901, a certificate of four years high school attendance or their equivalent from schools registered by the Regents or pass cards for 48 academic counts obtained by Regents examinations.*

A graduate of a dental college OUT of the State of New York is not admitted to the dental license examination of the State of New York unless he has fulfilled the preliminary educational requirements of "Degree Students."

2. **SPECIAL STUDENTS.**—Those who, without any preliminary educational requirements, matriculate, but not toward the degree, and attend the Infirmary practice, with lecture attendance *free*, pending their securing by Regents examinations the preliminary educational requirements to become a "Degree Student," with their "Special Student" period credited as pupilage only. On the date of their having obtained 24 counts they become "Degree Students."

3. **SESSION STUDENTS.**—Those who hold credentials of preliminary education equivalent to "a certificate of entrance into the second year of a high school," matriculate for their first or first and second lecture sessions, but not toward the degree, pay the fees and are eligible to take the examinations and certificates of the sessions. The certificate of the session or sessions will admit them to advance standing toward the degree in dental colleges, out of the state, belonging to the National Association of Dental Faculties.

For full details of the College, send for an announcement of 1900-1901 and a copy Faculties.

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New Orleans College of Dentistry

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C. V. VIGNES, D. D. S., Secretary (549 Carondelet St., cor. Lafayette, New Orleans, La.), Professor of Prosthetic Dentistry, Metallurgy, Prosthetic Technics.
OTTO LERCH, A. M., M. D., Ph. D., Professor of Physiology, General Pathology and Hygiene. (TO BE APPOINTED)—Professor of Orthodontia, Orthodontic Technics, Clinical Microscopy, Bacteriology.

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JOSEPH BAUER, D. D. S., Prosthetic Dentistry.
C. EDMUND KELLS, D. D. S., Roentgen Rays.
PHILIP J. FRIEDRICH, D. D. S., Obturators.
MARTIN VIET, D. D. S., Operative Dentistry.
M. R. FISHER, D. D. S., Crown and Bridge Work.
W. E. WALKER, D. D. S., M. D., Orthodontia.
E. B. KRUTTSCHNITT, A. M., LL.D., Dental Jurisprudence.
H. J. FELTUS, D. D. S., Porcelain Dental Art.
A. L. METZ, M. Ph. M. D., Chemistry.
P. L. CUSACHS, A. B., M. D., Ph. G., Chemistry.
E. TELLE, Prosthetic Dentistry.
GORDON KING, M. D., Diseases of the Antrum and Oral Pharynx.
A. L. PLOUGH, A. B., Dental Ethics.

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H. P. MAGRUDER, D. D. S., Prosthetic Technics and Metallurgy.
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CALENDARS

Entrance examinations conducted by the office of the Superintendent of Public Instruction, for students arriving without the required preliminary education certificate, begin	SEPTEMBER 24
Close	OCTOBER 19
Examinations for advancement begin	SEPTEMBER 2
Close	OCTOBER 19
Opening of Regular Session, 8:30 A. M.	OCTOBER 9
Matriculation for Regular Session closes	OCTOBER 19
Practitioners' Course begins	FEBRUARY 15
Practitioners' Course ends	MARCH 31
Final Examinations begin:	
Senior Class	APRIL 22
Junior and Freshman Classes	APRIL 29
Contests for graduation medals in Operative and Prosthetic Dentistry begin	APRIL 29
End	MAY 4
Clinic closes	MAY 5
Commencement Exercises	MAY 6
Practical Clinical Dentistry Course begins	JUNE 17
Ends	OCTOBER 8

With the exception of the Practitioners' Course, all our dates are advanced one month, as per the above Calendar.

The Diploma of this College is recognized by the National Association of Dental Examiners.

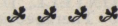
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Indiana Dental College * * * * *

DEPARTMENT OF DENTISTRY

UNIVERSITY OF INDIANAPOLIS

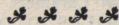


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BEGIN IN OCTOBER AND END
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FOR JUNIORS AND SENIORS
BEGIN IN APRIL AND END IN
OCTOBER.



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Dental Department

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 CHARLES H. POTTER, M. D.,
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MEMBER OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES

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With Superior Facilities for Infirmary Practice.

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Practical post-graduate instruction in operative and prosthetic dentistry, will be given, in the infirmary throughout the year.

With regard to INFIRMARY we strive to meet the demands of both student and State in supplying just enough material for the wants of the students and not to pauperize the public by making what is usually called a clinic.

The Diploma given by the New York Dental School is issued by the University of the State at Albany, only by permission of the New York Dental School to the State Board of Regents, which is the University of the State of New York.

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ALBERT C. BUCKLEY, M.D., Associate Professor of Histology.

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SAMUEL KIMMELL, D.D.S., Lecturer on Nitrous Oxid and Extraction of Teeth.
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W. WAYNE BABCOCK, M.D., Lecturer on Pathology and Bacteriology.

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J. D. PETERS, D.D.S.
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GEORGE F. ROOT, D.D.S.
LEWIS MARTIN, D.D.S.

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HENRY A. ICKES, D.D.S., Chief of Prosthetic Department.
EARLE C. RICE, D.D.S., Chief of Operative Department.
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JAMES M. CORNYN, D.D.S., Assistant Demonstrator of Operative Dentistry.
JOHN J. STETZER, D.D.S., Assistant Demonstrator of Prosthetic Dentistry.
HENRY A. BARY, D.D.S., Assistant Demonstrator of Prosthetic Dentistry.
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E. A. RICKARDS, D.D.S., Assistant Demonstrator of Operative Dentistry.
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J. B. JONES, D.D.S., Assistant Demonstrator of Prosthetic Dentistry.

J. L. RUTTER, D.D.S., Assistant Demonstrator of Operative Dentistry.
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JOHN M. BRISTER, M.D., Assistant Demonstrator of Physiology.
WILLIAM V. LAWS, M.D., Demonstrator of Operative Surgery.

SESSION.

The fall session will begin September 3, 1900, the regular session October 1, 1900, and continue seven months, examinations and graduation exercises being held concurrently with those of the Medical Department.

The courses will be graded, and a feature of the plan of teaching will be the subdivision of the classes into small sections, each to receive in turn the same instruction.

For demonstrations in practical dentistry there will be a special room known as the Professor's Clinic-Room, fitted up with every modern appliance of value to the student. In this room there will be regular demonstrations to small classes, thus insuring the student the best opportunity of gaining a thorough knowledge of general practice.

Crown- and Bridge-Work will be thoroughly demonstrated, also Porcelain Work, in a room specially fitted up for the purpose.

By a rule adopted by the National Association of Dental Faculties, all students are required to enter their names not later than October 10.

FEES.

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